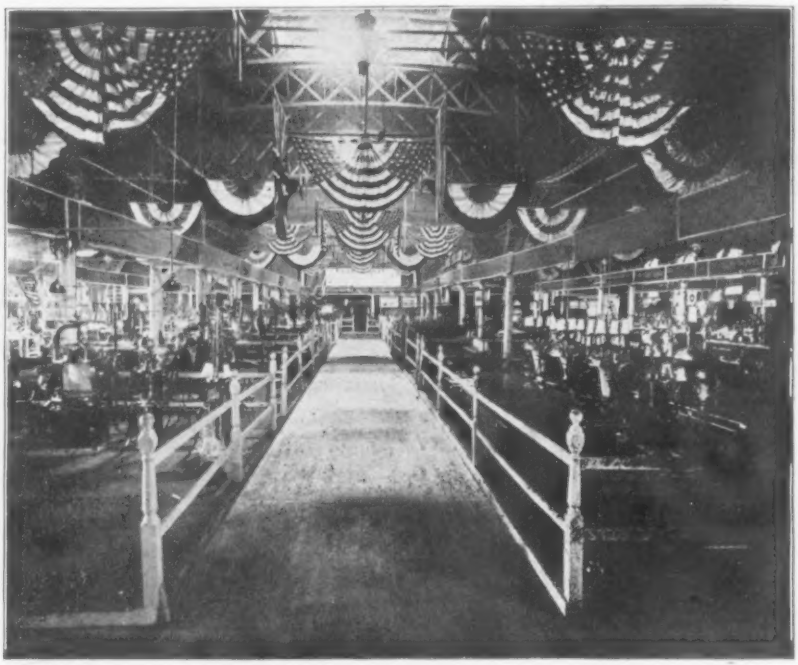
Number 3
Volume XLVII

JUNE, 1914

$2.00 per year
$3.00 with Directory

TEXTILE WORLD RECORD



A View in the Knitting Machinery Exhibition.

LORD & NAGLE COMPANY · BOSTON · MASS ·

JOHN JERSON · BOSTON

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The TEXTILE-FINISHING MACHINERY CO.

Howard Building, Providence, R. I.

BUILDERS OF

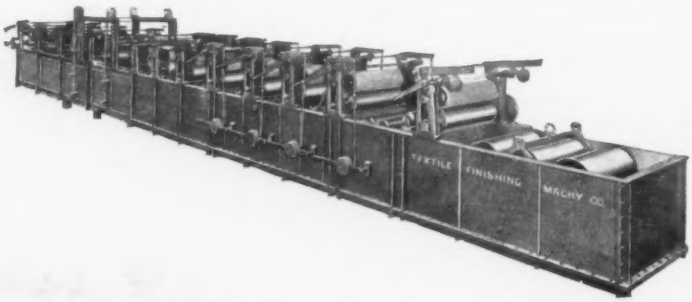
Singeing, Bleaching, Mercerizing, Dyeing, Drying, Printing and Finishing Machinery

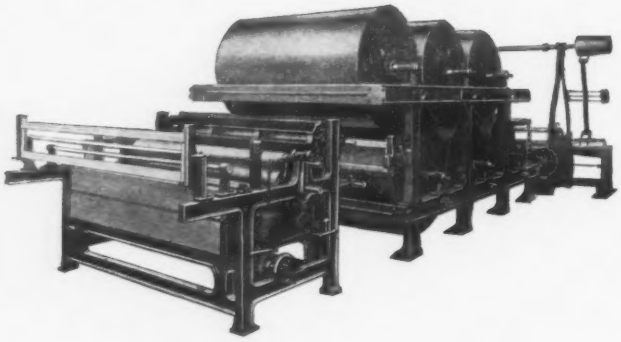
FOR

TEXTILE FABRICS AND WARPS

Plans and Estimates for Complete Plants

Warp Mercerizing Machine





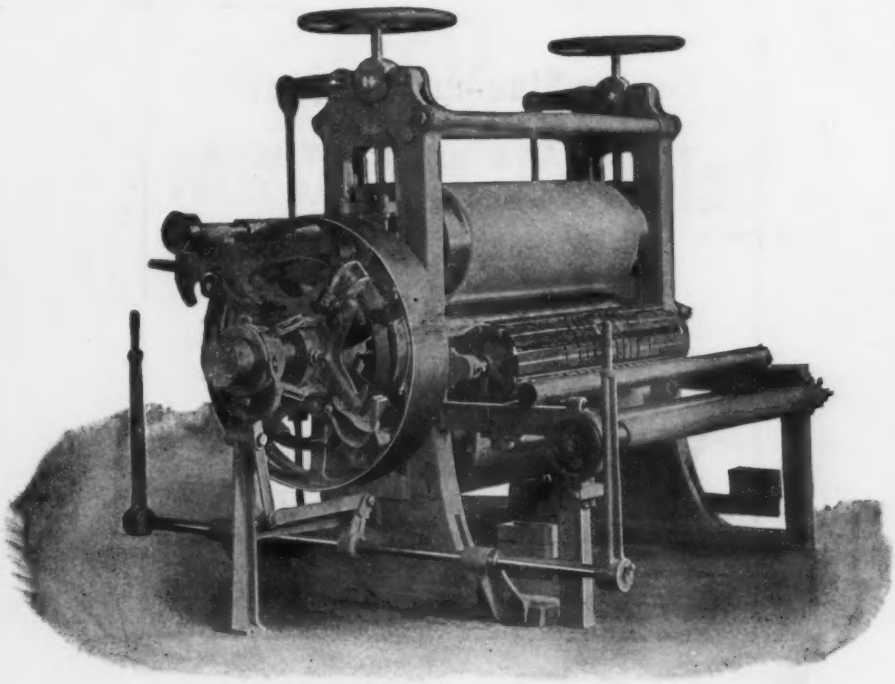
Carpet Yarn Sizing, Drying and Beaming Machine

SOLE BUILDERS IN UNITED STATES OF
SPENCER'S IMPROVED SKEIN MERCERIZING MACHINE

Mercerizing Machinery for Cotton Goods and Warps

Bleaching,
Dyeing, Drying,
Finishing Machinery

for all textile fabrics.



THREE-ROLL CALENDER.

H. W. BUTTERWORTH & SONS CO.

PHILADELPHIA, PA.

Providence Office, Room 417, Industrial Trust Bldg.

OUR RINGS

Set the Standard for Quality

THERE ARE NONE OTHERS "JUST AS GOOD."

MIRROR SPINNING RINGS

TRADE MARK REG. U.S. PAT. OFF.

DRAPER COMPANY

HOPEDALE, MASS.

DRAPER COMPANY

Northrop Loom Repairs

FIT

Northrop Looms

TRADE MARK REGISTERED

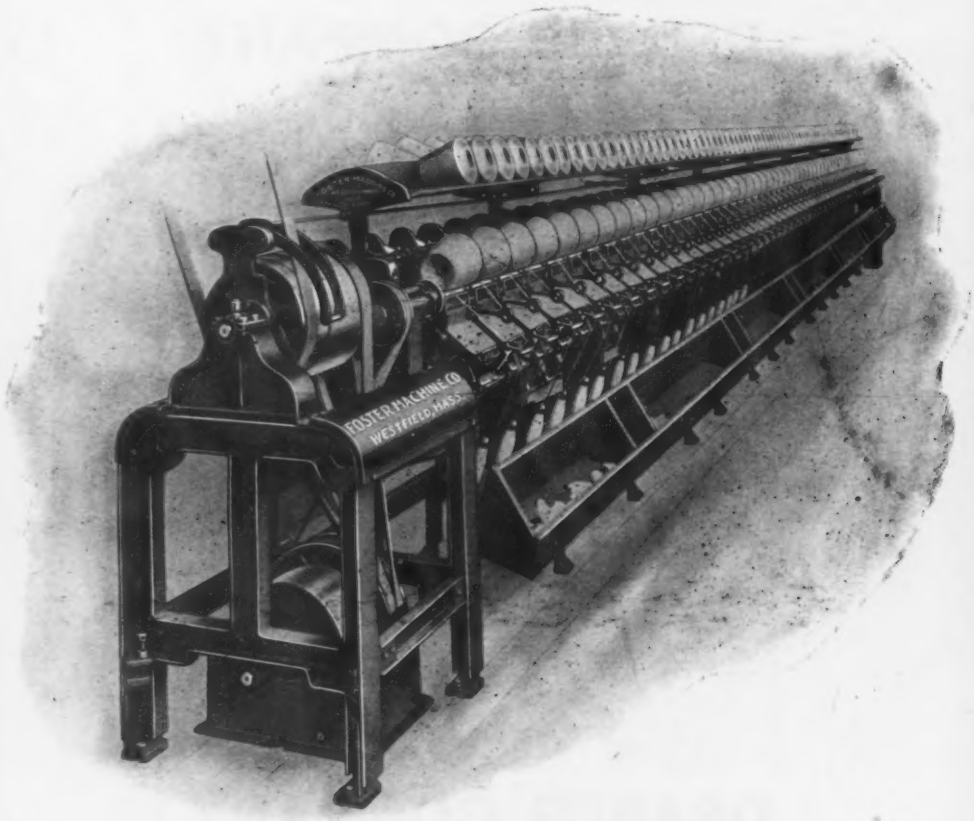
MADE BY

DRAPER COMPANY

Hopedale Mass.

J. D. CLOUDMAN Southern Agent
40 South Forsyth Street Atlanta Georgia

Foster Machine Co.



The Foster Model 12 differential attachment spaces the yarn on the cone in winding so as to secure in the Knitting process a light unwinding tension that does not change from start to finish of cone. ¶ This is *one* of the exclusive features that has made the Foster Finished cone acceptable to all Knitters.

Office and Works

Westfield, - - Massachusetts

John Hill, So. Agent, Third National Bank Bldg., Atlanta, Ga.

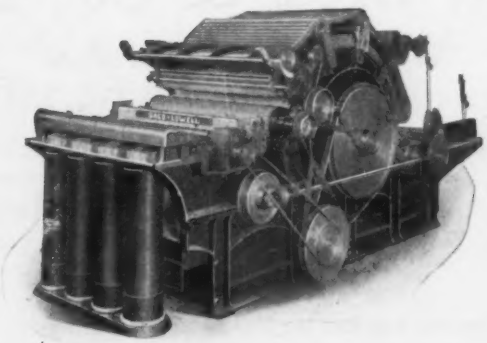
Saco-Lowell Shops

TEXTILE MACHINERY

WASTE RECLAIMING MACHINERY

COMPLETE COTTON MILL EQUIPMENT

Including:
Pickers
Cards
Drawing
Evener Drawing
Roving
Spinning
Twisters
Slashers
Spoolers
Reels
Winders
Warpers
Looms



FOUR COILER FRONT CARD

Used in connection with our WASTE SYSTEM

WORSTED MACHINERY

Including:
Revolving Creels
Gill Boxes
Drawing Frames
Reducing and Roving Frames
Cap Ring and Flyer Spinning and Twisting Frames
Jack Spoolers

THE RESULT OF OUR LONG EXPERIENCE AND STUDY UNDER ACTUAL MILL CONDITIONS ENABLES US TO BUILD MACHINERY WHICH SUCCESSFULLY MEETS THE VARIED REQUIREMENTS

Shops—
Lowell, Mass.
Biddeford, Maine
Newton Upper Falls, Mass.

Executive Offices—
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Boston, Mass.

Southern Agent, ROGERS W. DAVIS,
Charlotte, N. C.

LEIGH & BUTLER

SUCCESSORS TO

EVAN ARTHUR LEIGH

232 Summer Street opposite the South Station), Boston, Mass.

SOLE AGENTS

IN THE UNITED STATES AND CANADA FOR

Platt Bros. & Co., Ltd.

BY FAR THE LARGEST MAKERS IN THE WORLD OF

Cotton, Woolen & Worsted Machinery

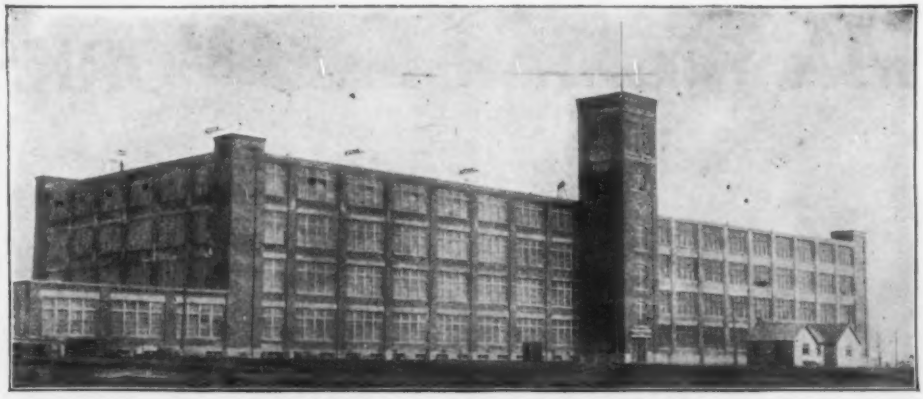
Platt's Patent Opening and Picking Machinery.
Platt's Cotton Comber—will comb from 7-8" stock to Sea Islands.
Platt's Special Machinery for Making Cotton Wastes into Yarns.
Platt's Special Machinery for Making French Worsted Yarns.
Platt's Woolen and Worsted Carding Engines, Special Designs.
Platt's Cotton, Cotton Waste, Woolen and Worsted Mules.

MATHER & PLATT, LTD.

Dyeing and Finishing Machinery

Archbutt-Deeley System for purifying and softening water.

JOSEPH SYKES BROS. Card Clothing for Cotton.
JAMES CRITCHLEY & SONS. Card Clothing for Woolen and Worsted.
WILSON BROS. BOBBIN CO. Bobbins, Shuttles, Etc.
THOMAS B. HAIGH. Double Loop Bands, Spinning Tape, Etc.
DRONSFIELD BROTHERS. Grinding Machinery and Emery Filleting.
HARDING'S Fallers, Pins and Circles.
The Best French and English Combing and Rubbing Aprons.
Card Flats reclothed and Lickers-in rewound.



Would a difference of 15 degrees cooler on a hot day interest you?

Consider the increase in working efficiency of your operatives when the temperature is **94 outside** your mill and **79 inside.**

Many ***CARRIER EQUIPPED*** mills will have exactly this condition during the coming summer—**have had it for many summers.** We guarantee it to do the same for you.

No system of humidification is complete unless it includes ventilation, humidity and temperature control. These last features are absolutely essential to maximum production throughout the entire year.

You owe it to yourself as a manufacturer, to your labor as an employer and to your stockholders as a trustee, to investigate

THE CARRIER SYSTEM OF AIR CONDITIONING

Our staff of engineers is at your service to furnish complete information regarding **your** plant.

WE HAVE A CATALOG FOR YOU

Carrier Air Conditioning Co.

Of America

No. 39 Cortlandt Street, New York City

BUFFALO, 490 Broadway

NEW ENGLAND
176 Federal Street
Boston, Mass.

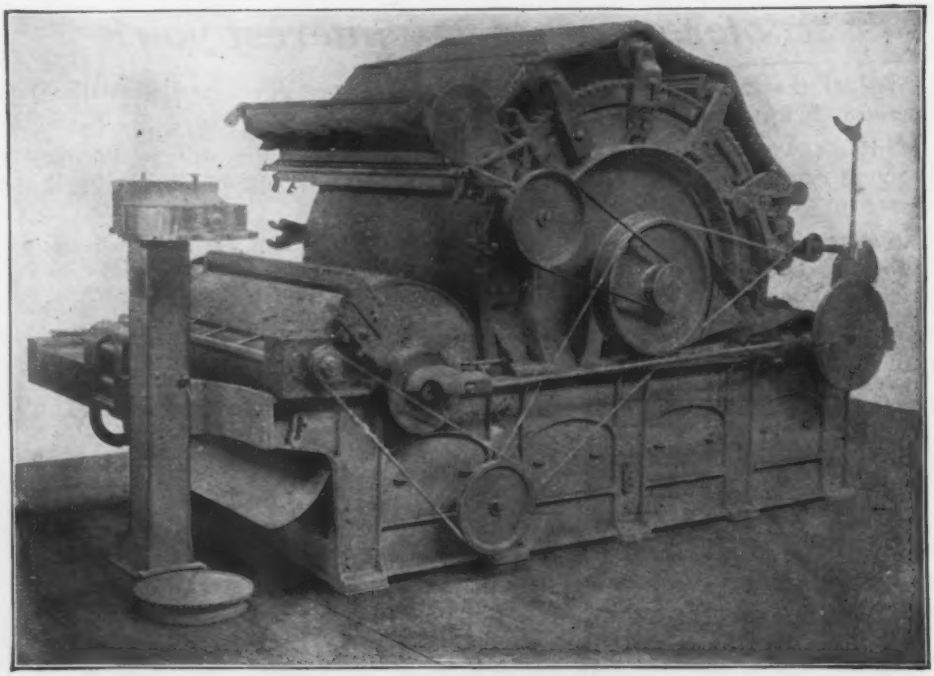
CHICAGO
Ft. Dearborn Bldg.
Clark and Monroe Sts.

PHILADELPHIA
734 Real Estate Trust Bldg.

MASON MACHINE WORKS

Taunton, Mass. **Greenville, S. C.**

Builders of
Revolving Flat Cards, Drawing Frames,
Spinning Frames, Looms, Dobbies, Etc.



Superior Loom Cranks for Repairs

Are you troubled with Alligatoring?

There is an easy way out—don't use a paint containing varnish. Gloss paints containing varnish grow harder, become brittle with age and are liable to cause "alligatoring"— or cracking— and then scaling.

RICE'S MILL WHITE

Is the only oil paint manufactured without the use of varnish, which gives a glossy, tile-like finish. It reflects every ray of light down on your machinery and will give you 19 to 36 per cent more light than you had before. It can be washed like tile. It will not collect dirt, germs and odors like a flat paint. It will not scale and require frequent renewals like a cold water paint. It will not "alligator" and crack under the jar of machinery like a varnish paint. *It stays white longer than any other gloss paint.*

Rice's Mill White, the original and the standard Mill White, made a trade name of the words "Mill White". There is no substitute for it. No other paint manufacturer can use the Rice process. No imitation has its elastic, permanent qualities. For ten years it has been unequalled for illuminating power, sanitary qualities and low ultimate cost.

Write for Booklet and Sample Board

Ask for a copy of our booklet, "More Light." *Write today.*

U. S. Gutta Percha Paint Co.
20 Dudley Street
PROVIDENCE, R. I.

Parks' Piping Parables

The G. M. PARKS CO.
Fitchburg, Mass.

Gentlemen:—

You may be interested to know that according to the figures of the ——— Company from whom we buy heat, there has been a saving of 17½% in the amount of fuel used in the six months period ending April first, in comparison with the previous year for the same months. And in addition to this would say there have been but one or two days when we could not work in the mill; and believe that the re-piping that you did for us in the fall of last year was of great advantage to our plant.

Very truly yours,

_____ Hosiery Co.

Supplementing the announcement which we made in these columns recently regarding our position in the engineeing field — we have more news.

Bert Thompson—I always think of him as Bert Thompson, formally Albert W. Thompson—is here with us on our staff of engineers.

Bert Thompson is the inventor of the Turbo - Humidifier. That's where and how and by means of which we got acquainted.

I take it as a mutual compliment that after all these years of intimate business acquaintance he wants to hitch up closer to us—and we to him.

Mr. Thompson was graduated from the Massachusetts Institute of Technology in the class of 1896. He joined the staff of The Amoskeag Company, rising by merit to the position of Mechanical Superintendent having in charge the machine shop and mechanical problems about the mill.

Later he became Superintendent of the Saco-Lowell Shops at Lowell and comes from that position to the position of Managing Engineer for the The G. M. Parks Company.

Mr. Thompson's education, experience and temperament have a decidedly engineering slant—and very textiley.

He will bring an experience supplementing that already here which will be peculiarly valuable to our clients.

In this matter of piping we offer a service beyond that of the contractor— beyond that of the engineer. We combine both, with the result to the customer—we like to think—of a better service than could be possible otherwise.

You are used to thinking of piping as an auxiliary—while to us your heating and process demands for steam make us feel that power is a by-product.

However revolutionary that may sound, we have instances of where it proved so.

Mr. Thompson's coming here made us cast about—and take a sort of engineering inventory, as it were. Perhaps it will not be immodest to tell you about it.

On our staff are two members of the American Society of Mechanical Engineers. There are five Worcester Polytechnic men; one from the Massachusetts Institute of Technology; three from Cornell.

These men are specializing on mill and power piping; on heating, ventilating and humidifying problems; on combination heating and sprinkling.

But more than all that, they are interested in power revision—in balancing the power with the calls for heat.

This calls for a broader knowledge of the manufacturer's problem than is usually suggested by the word piping.

So we have added one word more, conservationists.

We act as conservationists—loving friends please do not read conversationists—as engineers, specializing on problems that we feel sure will prove of interest. PARKO

The G. M. Parks Company, Fitchburg, Massachusetts

A "Pure Water" Law?

The Turbo-Humidifier system stands for pure water for breathing purposes. It has no return water feature for it vaporizes all the water that passes through it.

That means that we can hitch it to the drinking water supply and not break you.

Already, one state has investigated this subject and it's only a question of time when pure water in humidifiers will be just as much a matter to be taken for granted — and guarded as scrupulously — as drinking water is now.

The Turbo system stands for pure water *now*. It stands for this — *that water to breathe should be as pure* as water to drink.

And it Stands for Genuine Economy

As is Evident from these Three Facts

1. There are no casings, fans, motors, cloths, mantels, cleaning mechanism, moving parts — this extreme simplicity alone makes the Turbo surpassingly economical.

2. It is flexible and adaptable and can be used anywhere.

3. It is guaranteed to maintain the degree of humidity you desire.

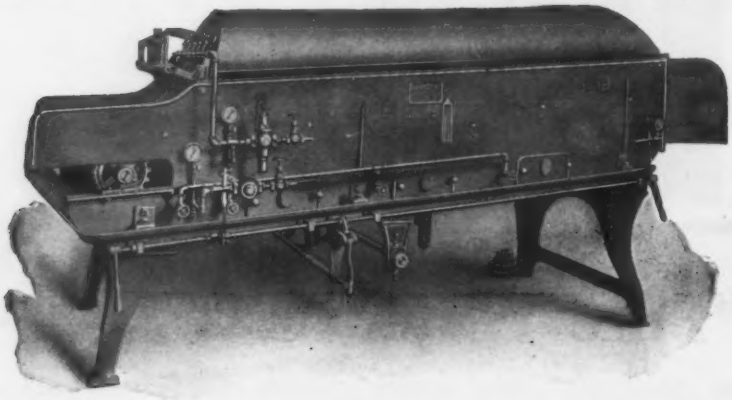
There are other Turbo facts that point to more sanitary conditions and more efficient management. If you want them ask for a Catalog or an Engineer — we'll send either without obligating you.

The G. M. Parks Company
Fitchburg, Mass.

Southern Office, 200 Commercial Bank Building. J. S. Cothran, Mgr.

The Yarn Conditioning Machine

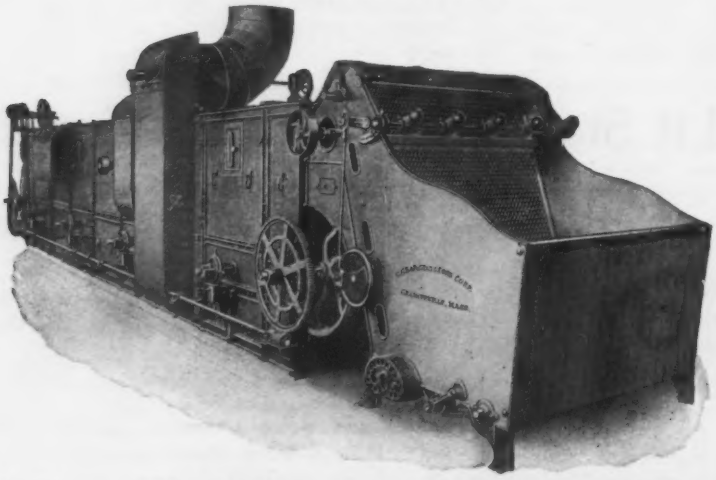
Sets the twist in your filling and overcomes kinky filling difficulties. It conditions without injuring the bobbins



The Sargent Drying Machines

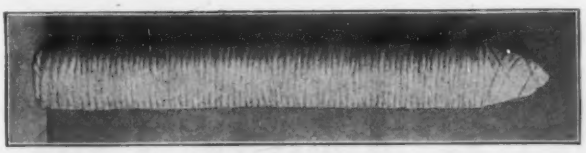
Metal Construction
Asbestos Insulation

Scientifically designed for greatest economy in drying Cotton, Wool, Hair.



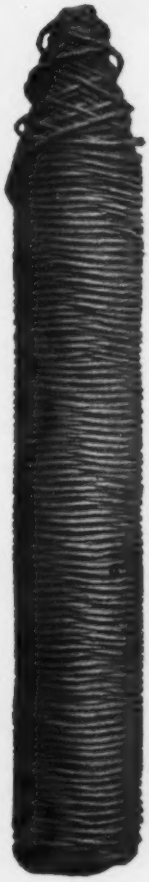
Wool Washers, Wool Dusters and Openers, Burr Pickers
Complete Carbonizing Plants
Automatic Feeds for Cotton and Wool

C. G. Sargent's Sons Corp., Graniteville, Mass.

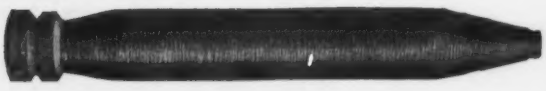


No. 2

No. 1 and No. 2—Cops to weave from inside seven-eighths to three inches diameter and up to seventeen inches long. Suitable for various kinds of coarse goods such as grass matting, cotton bagging, cocoa matting, all kinds of carpets, felts, chinchilla, linen, jute, flax, asbestos, hose and narrow fabrics such as wicks, belting, webbing, surcingles, halters, etc.



No. 3 and No. 4 Shuttle Bobbins from seven-eighths to two inches in diameter and any length up to twelve inches. Suitable for all kinds of duck, upholsteries, tapestries, asbestos, ratana or any kind of fancy yarns for automatic or other looms.



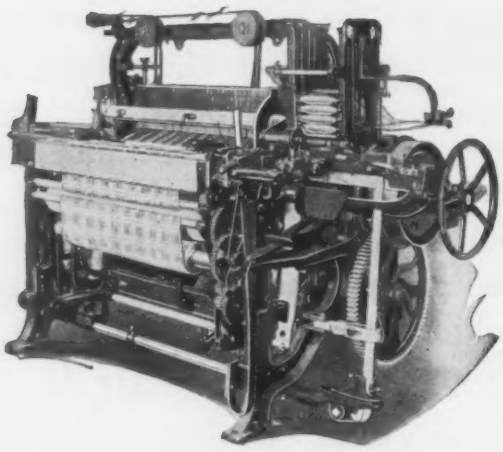
No. 1 No. 4 No. 3

OSWALD LEVER CO., Inc.

Lehigh Avenue and Front Street, Philadelphia, Pa.

Builders of Textile Machinery WINDERS ESPECIALLY

Crompton & Knowles Loom Works



Automatic Gingham Looms

One of our latest productions for weaving goods of two or more colors in the filling. Like every loom we build, it has the advantage of a successful mill test.

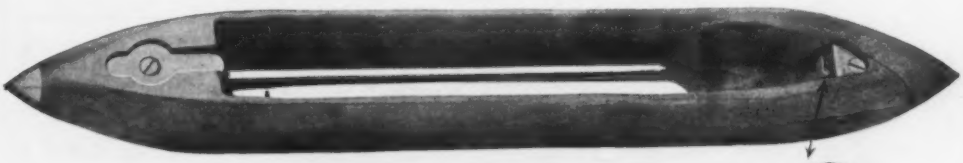
WORCESTER, MASS.

Providence, R. I. **Philadelphia, Pa.**

Southern representative, ALEXANDER & GARSED, Charlotte, N. C.

New Hand-Threading Shuttle

The Caron Patent Hand Threader



This "THROAT PLATE" (slightly enlarged) is so designed that the Yarn *cannot "Balloon"*

This "SIDE EYE" (slightly enlarged), made in two parts, *prevents unthreading.*

The Simplest and Most Quickly Threaded Shuttle Made

It can be filled with the finest silk or the coarsest filling—will neither *unthread* nor "*balloon*"—lint that accumulates is easily removed—felt can be inserted for tension purposes—and being a hand-threading shuttle, it is sanitary.

This shuttle is entirely different from all others. It has been severely tested for a year by large mills and is the most effective hand threader on the market.

Trial orders solicited—Satisfaction guaranteed

Paper Cop Tubes Cones and Shells

Send your samples and we will quote prices on any lot desired

Shuttles and Shuttle Irons

For All Textile Purposes

American Textile Specialty Machinery Co.

670 Eddy Street - Providence, R. I.

13th St. and Boulevard, Long Island City

The Hunter

NO. 10 FULLING MILL

DRIVING SIDE

GEAR DRIVE

CLOTH WASHERS

PEICE DYE KETTLES

SOAPING MACHINES

BELT DRIVE

ROPE DRIVE

JAMES HUNTER MACHINE CO.

NORTH ADAMS, MASS., U. S. A.

ECONOMY AND SAFETY

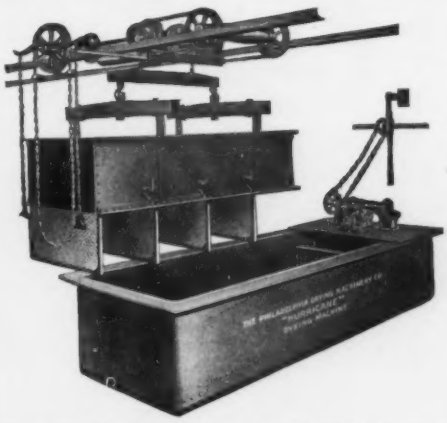
YOU GET BOTH WITH

"Hurricane" Machinery

FOR

HOSIERY
SKEIN
YARN
SLUBBING
etc.

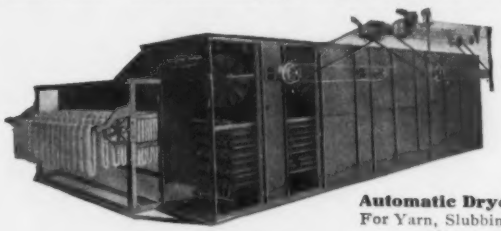
The best and mosteconomical Dyeing Machines



BETTER DYEING at LESS EXPENSE

Give us an opportunity to prove our claims

"Hurricane" Circulating Dyeing Machines are built in various sizes and types



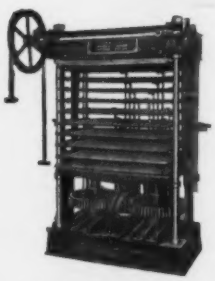
Automatic Dryer
For Yarn, Slubbing, etc.

Complete Equipments for

Dyeing
Scouring
Bleaching
Carbonizing

FIRE-PROOF DRYERS

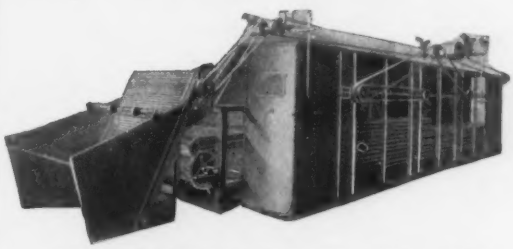
STEEL CONSTRUCTION INSULATED WITH ASBESTOS



Power-Screw and Hydraulic
PRESSES

Fans

Motor and Belt Driven



AUTOMATIC STOCK DRYER
(With Sectional-Continuous Conveyor)
For Cotton, Wool, Hair, Rags, etc.

THE PHILADELPHIA DRYING MACHINERY CO.

Main Office and Works: 6721 Germantown Ave., Phila., Pa. **Boston Office: 53 State Street**

Danamar Gum

The choice of Bradford Job Dressers for the sizing of Worsted and Botany Yarns.

Gum Tragasol

One-fifth of the world's power looms running with warps sized by the help of Gum Tragasol.

Maco Egyptian Tint

The correct and permanent tint for Scrims and Balbriggan Underwear, for bleached and unbleached stock.

Bleaching Assistant

A mild yet efficient detergent. Imparts a soft feel and represents a considerable saving in shrinkage as compared with more powerful alkalis

JOHN P. MARSTON
247 ATLANTIC AVENUE
BOSTON, MASS.

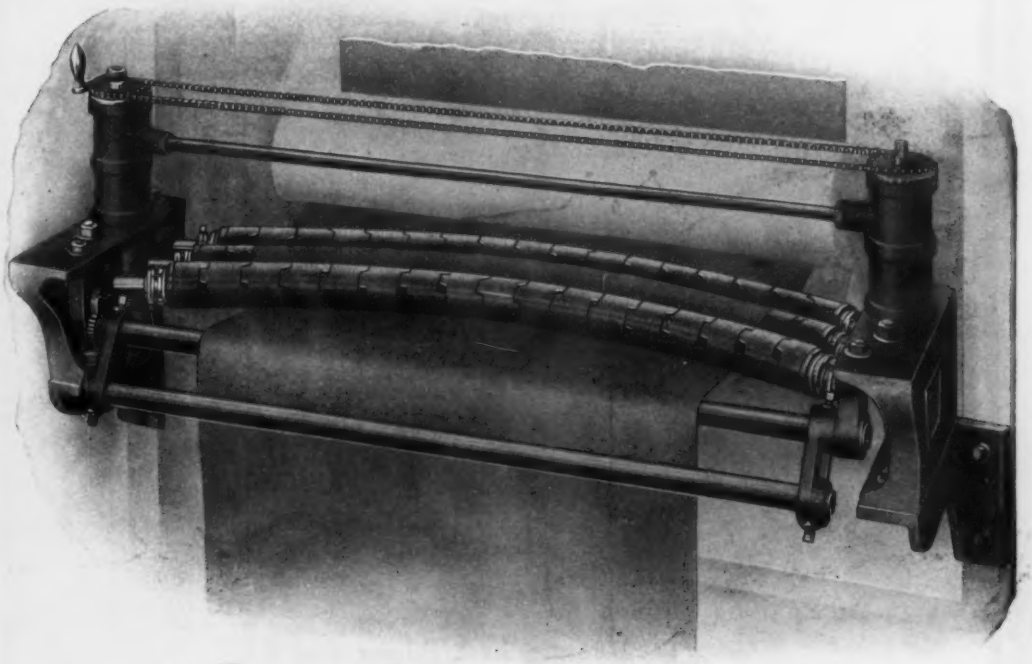
THOMAS LEYLAND & COMPANY

F. T. Walsh, Manager

60 India Street, Boston, Mass. WORKS AT READVILLE, MASS.

Sole Manufacturers of THE WILLIAM MYCOCK

Improved Regulating Cloth Expander

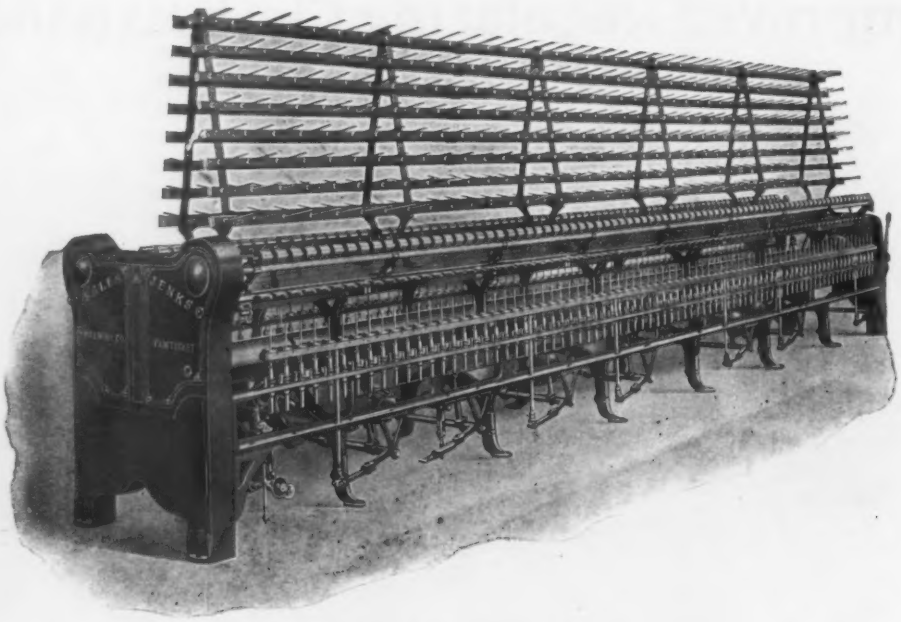


Expander attached to Calendar showing Regulating Motion and Adjustable Tension Bars

This Expander and its improved features are fully protected by basic United States patents, under which the builders will maintain their patent rights against any who may violate such rights by building, selling or using machines of this character.

Scutchers, Sewing Machines, Open Bleaching Machines, Blanket Washers for Calico Printers, Guides, Etc.

Cotton Machinery by Specialists



Improved Ring Twister

Lightest Running Frames

Require Less Power

Less Cost for Upkeep

We Call Special Attention to Our Tape Drive

Fales & Jenks Machine Co.

Southern Representative:
J. H. MAYES, Independence Bldg.
Charlotte, N. C.

Northern Representative:
WM. V. THRELFALL, Marshall Bldg.
Boston, Mass.

Cotton Machinery by Specialists

Pickers and Revolving Flat Cards

POTTER & JOHNSTON MACHINE CO.

Pawtucket, R. I.

Drawing and Roving Machinery

WOONSOCKET MACHINE & PRESS CO.

Woonsocket, R. I.

Ring Spinning and Twisting Frames

FALES & JENKS MACHINE CO.

Pawtucket, R. I.

Spoolers, Winders and Reels

EASTON & BURNHAM MACHINE CO.

Pawtucket, R. I.

Warpers and Beamers

T. C. ENTWISTLE CO.

Lowell, Mass.

Southern Representative:
J. H. MAYES, Independence Bldg.
Charlotte, N. C.

Northern Representative:
WM. V. THRELFALL, Marshall Bldg.
Boston, Mass.

Starch

THE particular case of your own mill needs careful study to determine what starch is best suited to *your* SIZING and FINISHING problems.

We have reduced the manufacture of starches for textile work to a science by years of factory investigation and laboratory research. We are ready to take up the special case of your mill and point out to you what starches are most adaptable and reliable for your purposes.

Six years of careful investigation of conditions in the cotton mills of the country has taught us the needs of the trade.

Six years' research in the best equipped Starch Laboratory in America has put us in touch with starch chemistry.

Six years of manufacturing, with cotton mill problems in mind, has produced our special Brands of Textile Starches.

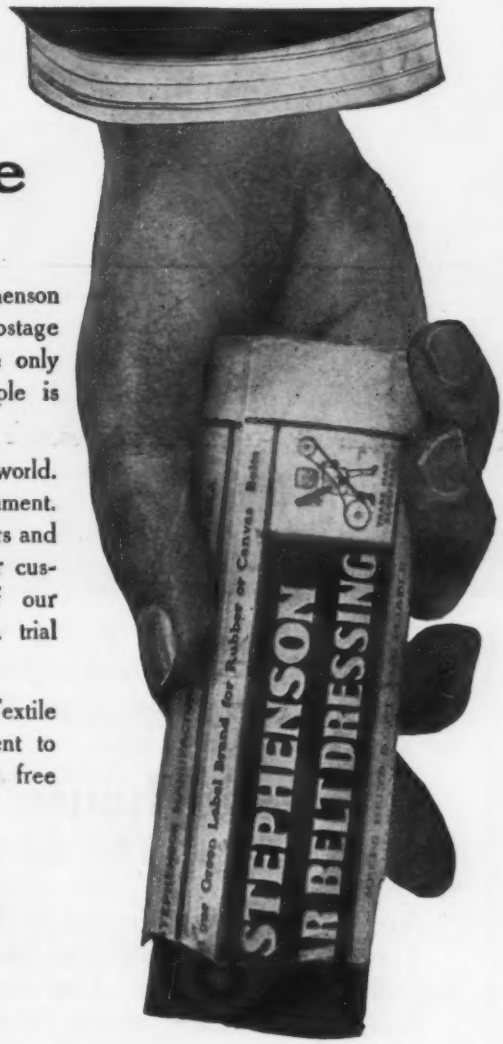
We want to send our special starch expert to your mill. We want him to go into the matter of sizing with your boss of slashing—check up your sizing processes—find out whether you are now using the starches that will insure you the most efficient and economical results.

This special starch expert service is absolutely free—send us a sample of the starches you are using. We will give you an exact analysis of them and send our practical man to study your needs. Write a letter now to our Mill Starch Department.

Corn Products Refining Company
NEW YORK

Starch

Yours For 2 Cents



This Sample Is Free

You can get this half-pound stick of Stephenson Bar Belt Dressing. The cost of a postage stamp, to bring your request to us, is the only cost to you—now or later. The sample is ***absolutely free.***

The most approved dressing in the world. ¶ Quality and utility our only selling argument. ¶ Used in textile mills for twenty-five years and never a stick of dressing returned. ¶ Our customers are obtained by pure merit of our product. Price higher than any. ¶ A trial costs nothing. Send for sample.

Just say, "Send me sample as offered in Textile World Record," or pin this advertisement to your letter-head and mail it now and a free sample will go to you by return mail.

Stephenson Mfg. Co.
Albany, N. Y.

Will You Take It?

Saving Twenty-eight Million Dollars every Year

Census statistics show that $150,000,000 are lost every year through spoilage in mills and factories.

Also that at least nineteen per cent of this could be saved by the use of more and better light.

Westinghouse Mazda Lamps

if properly used in every mill and factory would save $28,000,000 every year.

Are you saving your portion of this vast amount?

You can install Westinghouse Mazdas this summer without interfering with your production. Our engineers can tell you how.

Send for our booklet on the "Illumination of Textile Mills." It is worth reading.

WESTINGHOUSE LAMP COMPANY

Offices Throughout the Country

Factories: Bloomfield, N. J. and New York, N. Y.
General Offices: 1261 Broadway, New York

Turn the Light of Profit on Your Mill
Lighten the Day Work and Reduce
Costly Depreciation

BAY STATE

BRICK AND CEMENT COATING

Is made for the specific purpose of giving workable light to dark corners, which shows a great saving in the consumption of artificial light and where conditions are satisfactory, surfaces coated are rendered free from chipping or peeling, thus protecting intricate machinery from injury and resisting the action of steam, acids and gases, producing results which all tend to increase the efficiency of employees.

Send for our Interesting Booklet 12, which contains complete information on the subject of Painting

WADSWORTH, HOWLAND & CO., INC.
Paint and Varnish Makers and Lead Corroders
BOSTON, MASS.

FREE BOOKLET COUPON

Tear out and fill in carefully.

Wadsworth, Howland & Co., Inc. Boston.

Please send without any obligation on my part free booklet on the subject of cement coatings.

Name.....
Street.....
City.....State.....

LANE

Canvas Mill Baskets Boxes and Trucks

FIG. 22.

Round Taper Style with Renewable Hardwood Shoes.
The Ideal Waste Basket. Made also without wooden shoes.

Increase Dividends Through

Less Waste Lighter Weight
Longer Life
Lower Ultimate Cost

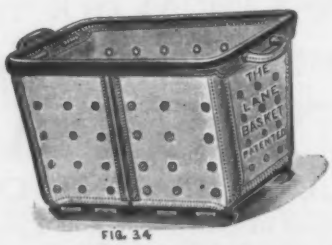


FIG. 34

Oblong Taper Style.
A Steaming Basket with Great Durability and Quick Steaming Qualities.
Made in shape or size to fit any steam box.

A STYLE FOR EVERY USE

W. T. LANE & BRO., Mfrs.

POUGHKEEPSIE, N. Y.

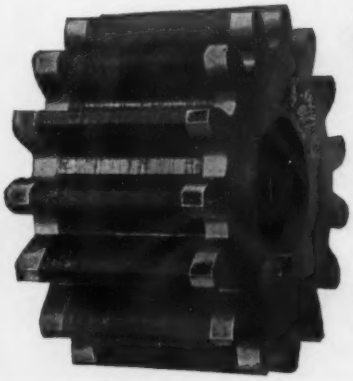
There won't be any more noise around here after we put on this

NEW PROCESS NOISELESS PINION

Complete utilization of the brain power of your assistants and operatives demands quiet surroundings.

Noises considered permissible only a few years ago are now condemned by efficiency experts and medical advisers alike.

Why not suppress the useless *gear noises* by replacing offensive metal pinions with quiet New Process Rawhide Pinions which would help to bring your textile mill and your output up to present day high standards and at the same time earn the gratitude of your employes?



NEW PROCESS IS TO ALL OTHER RAWHIDE AS STEEL IS TO IRON

NEW PROCESS GEAR CORPORATION
SYRACUSE, N.Y

Canadian Agents: Robert Gardner & Son, Ltd., Montreal

94

A. W. BUHLMANN

Textile Engineer

200 FIFTH AVENUE - - NEW YORK

REPRESENTING

FRANZ MUELLER

MASCHINENFABRIK

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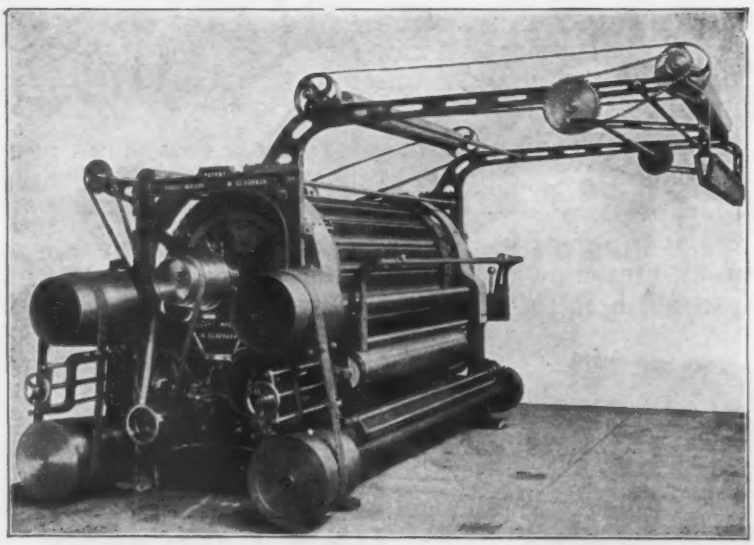
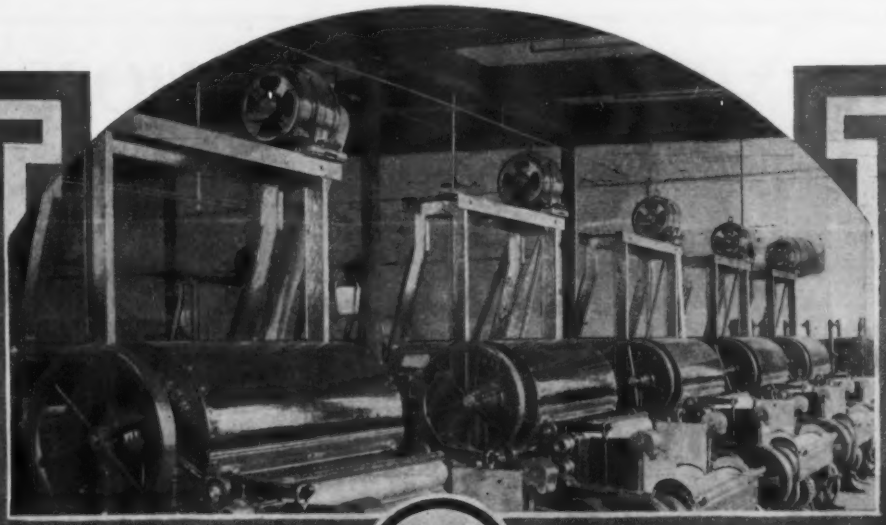


The Mueller 36 Roller Universal Napper

Used by the Leading Firms in America and Europe in preference to any other machine



W
WESTINGHOUSE ELECTRIC

Westinghouse Electric Picker Motors

make profits for the textile manufacturer by cutting down unit costs and increasing production. They are proving highly satisfactory in hundreds of installations because they

are designed especially for picker drive.

Some of their special features are: great reliability, simplicity of construction, complete protection from dust and lint, dust-proof bearings, moisture-proof windings, uniform speed, and high efficiency. An occasional inspection and lubrication is the only attention required.

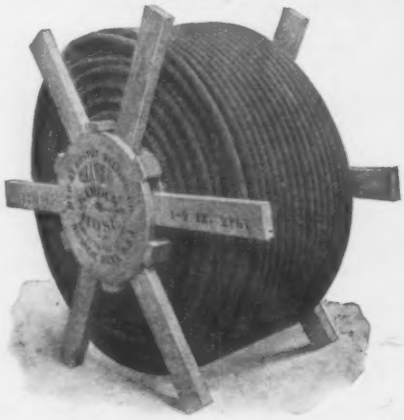
WRITE FOR FULL INFORMATION

Westinghouse Electric and Manufacturing Co.

EAST PITTSBURGH, PA.

Boston	*New York*	*Philadelphia*	*Charlotte*
Safe Deposit & Trust Bldg.	*City Investing Bldg.*	*North American Bldg.*	*American Bldg.*

"ROXBRO" BRAIDED HOSE



A splendid hose for air or water.

Is made of high-grade materials, is very durable and flexible.

The best hose obtainable for use in connection with compressed air cleaning systems.

Gives long service and perfect satisfaction.

Give it a trial.

GUTTA-BALATA BELTING

A belt constructed of specially woven, high-grade cotton duck, the plies being firmly bonded together with our Gutta-Balata compound.

A very strong, pliable belt, especially adapted for use on small pulleys.

Can be used in place of leather belting, with satisfaction and economy.

Send for descriptive booklet and sample.

Rubber Belting Packings Valves Gaskets Diaphragms

RUBBER-COVERED ROLLERS

New Rollers Complete Old Rollers Re-covered

Boston Belting Co.

HOME OFFICE AND FACTORY: BOSTON

New York Buffalo Chicago San Francisco Portland, Oregon

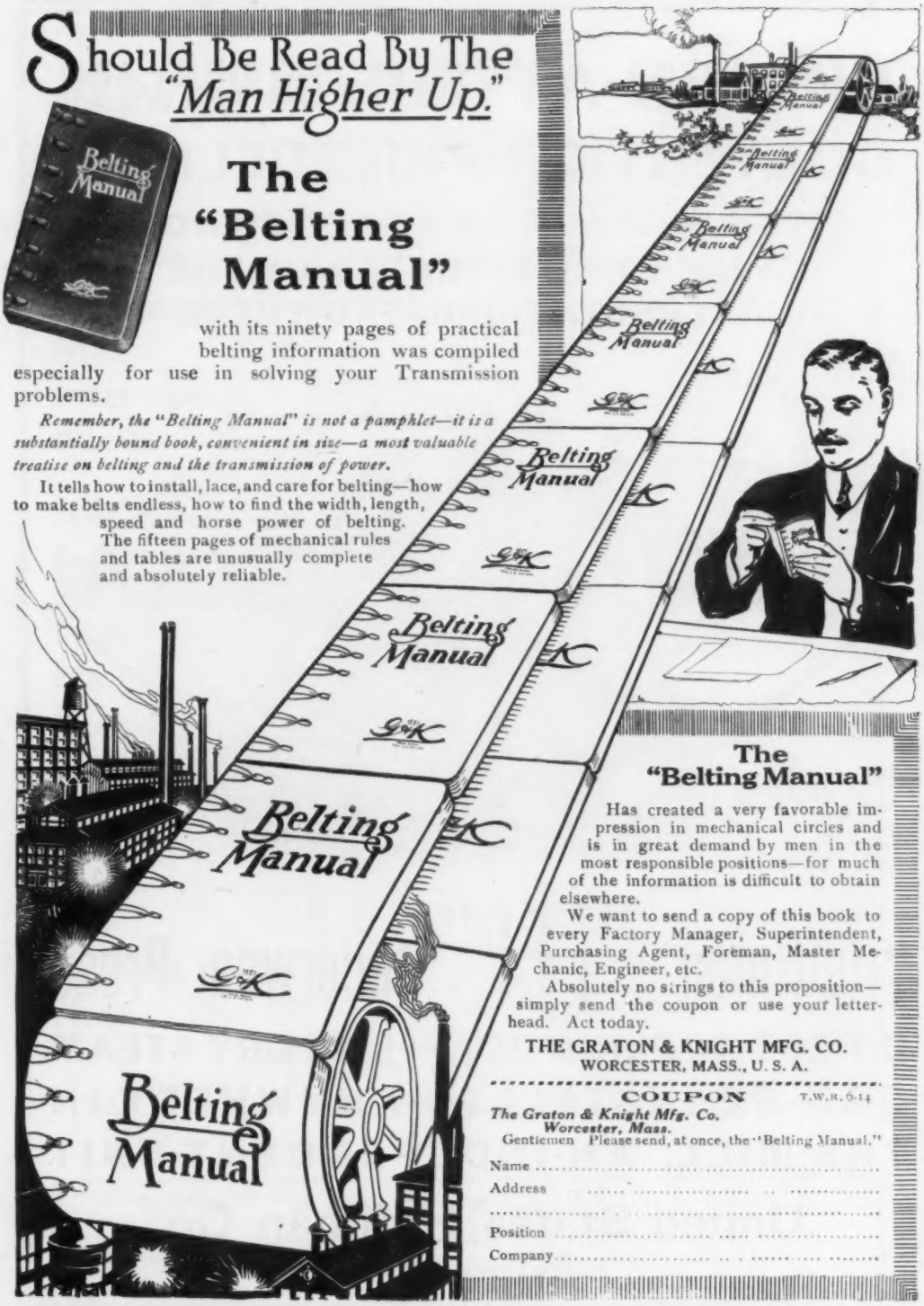
Should Be Read By The "Man Higher Up."

The "Belting Manual"

with its ninety pages of practical belting information was compiled especially for use in solving your Transmission problems.

Remember, the "Belting Manual" is not a pamphlet—it is a substantially bound book, convenient in size—a most valuable treatise on belting and the transmission of power.

It tells how to install, lace, and care for belting—how to make belts endless, how to find the width, length, speed and horse power of belting. The fifteen pages of mechanical rules and tables are unusually complete and absolutely reliable.



The "Belting Manual"

Has created a very favorable impression in mechanical circles and is in great demand by men in the most responsible positions—for much of the information is difficult to obtain elsewhere.

We want to send a copy of this book to every Factory Manager, Superintendent, Purchasing Agent, Foreman, Master Mechanic, Engineer, etc.

Absolutely no strings to this proposition—simply send the coupon or use your letterhead. Act today.

THE GRATON & KNIGHT MFG. CO.
WORCESTER, MASS., U. S. A.

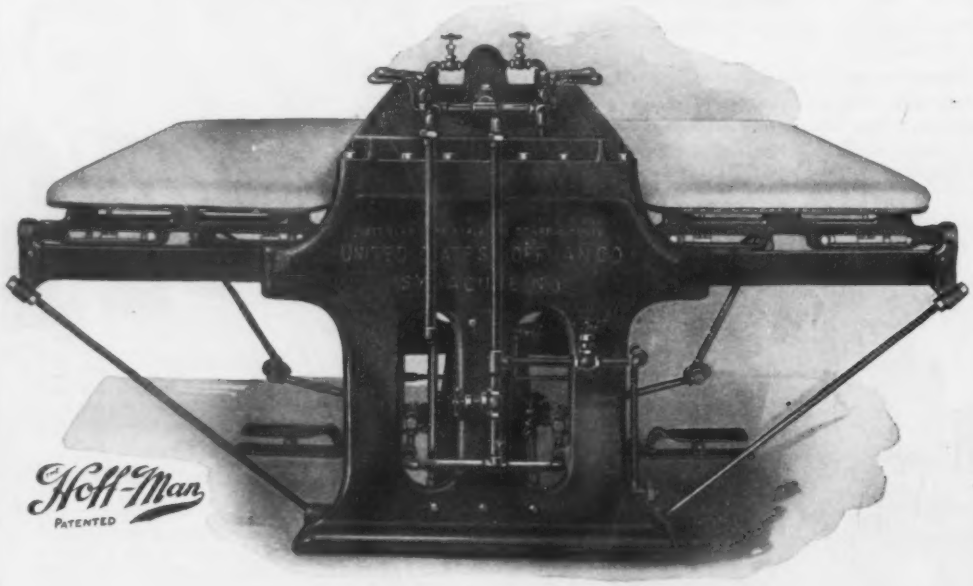
COUPON T.W.R. 6-14

The Graton & Knight Mfg. Co.
Worcester, Mass.
Gentlemen Please send, at once, the "Belting Manual."

Name .....
Address .....
.....
Position .....
Company .....

SHOWN-AT-THE HOSIERY AND UNDERWEAR CONVENTION-PHILADELPHIA

ITS-POPULARITY-AND-EFFICIENCY
WERE-DEMONSTRATED-BY-THE
INTEREST-IT-CREATED-THERE



"Hoff-man" "FFF" Underwear Press

DIRECT-APPLICATION-of-LIVE-DRY-STEAM
CAN-BE-INSTALLED-ANYWHERE-IN
THE-MILL. AN-INDEPENDENT-UNIT

United States Hoffman Co.
Syracuse, N.Y.

JUST OUT— GET IT

This Booklet Contains Many Interesting Facts.

It is New--

The Hanger Is Good.

Send For Booklet Now

THE HESS-BRIGHT MFG. CO.
Front St. and Erie Ave., Phila., Pa.
Please send to the undersigned your new booklet on Hess-Bright Ball Bearing Hangers. T.W.R.

Name .....
Firm .....
Address .....

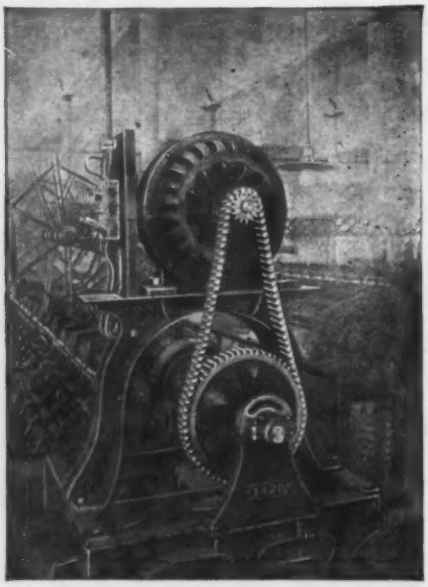
→ See next issue for advertisement of Hess-Bright Ball Bearings applied to textile machinery ←

Textile Men appreciate the value of

MORSE

Silent

Chain Drives



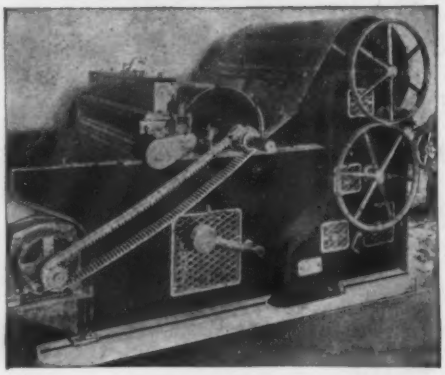
Their saving of power alone has meant an increase in production of from 10 to 20 per cent in many mills.

Their smooth, silent, positive action means less broken ends, fewer seconds and less noise.

In cost they are cheaper than either belting or gearing, because they pay for themselves by their saving of power, in from two to three years.

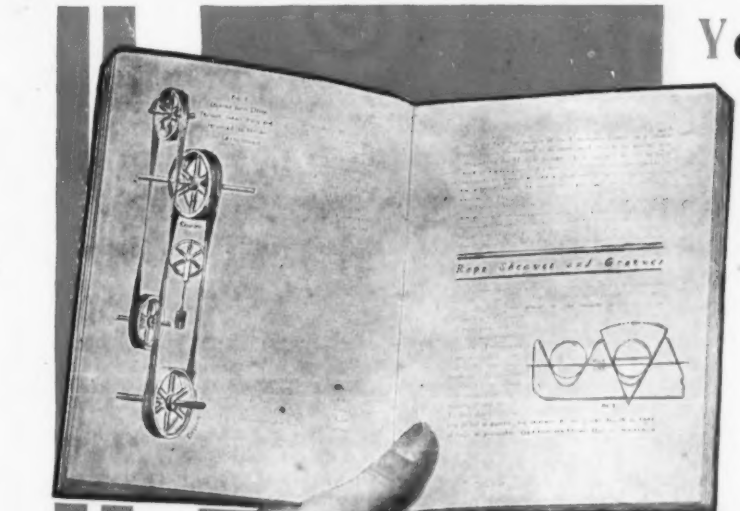
In Textile Service, Morse Chains usually pay for themselves two to four times over before worn out.

Why not write us for particulars. Every day you wait adds to your loss.



Morse Chain Company, Ithaca, N. Y.

BOSTON: 141 Milk Street NEW YORK: 50 Church Street A101



You Should Read What This Free Book Says About Rope Transmission

¶ It is full of valuable information on a subject of great importance to all power users. It explains the principles of power transmission in an untechnical, understandable way,—the different methods in use and the adaptability of rope driving to power problems.

¶ It contains many important and helpful suggestions for transmission rope users,—practical and useful knowledge that you may apply to the betterment of your plant's operation and the reduction of manufacturing costs.

¶ SUCH AS:—how to use cross and quarter-turn drives; the formulae for horse-power and sag; the proper velocity at which to run ropes; how to correct jumping ropes; how to splice a transmission rope (it has to be done in a particular way); how to get best results from a new rope.

¶ It tells all about AMERICAN TRANSMISSION ROPE. How it is made, lubricated and tested; how the standards observed in its manufacture ensure the maximum in service and life.

Send us your name

on business letterhead and we'll forward the book to you promptly. Your request puts you under no obligation whatever.

When you want Transmission Rope—order
AMERICAN TRANSMISSION ROPE

We Ship Without Delay—on Telegram if Necessary from either point of manufacture

American Manufacturing Co.
Dept. T
Brooklyn, N. Y. City

St. Louis Cordage Mills
Dept. T
St. Louis, Missouri

This picture shows how the American Thread Company do their weighing in their plant at Holyoke, Mass., with the Kron Scale. The scale shown is a **1500-lb. Dormant Platform Scale,** equipped with a tare-beam for automatic deduction of tare-weight, so that only the net weight is shown on the dial.

Automatic — The Kron Scale — *Springless*

"LOAD AND LOOK"

ALL that is necessary is to place the load on the platform and look at the dial. From one pound up to the full capacity of the scale the pointer quickly indicates the exact weight. You can weigh a 15-lb. package and a 1000-lb. shipment, one right after the other, as quickly as you can load and unload the scale.

There are **no Springs, Pivots** or **Knife-edges** in the dial mechanism of the KRON to get out of order. There is no liquid dash-pot—the pointer always stops "dead" at accurate weight.

Leading concerns throughout the country requiring quick, accurate weighing, use the KRON scale, and it is saving many thousands of dollars yearly for the users.

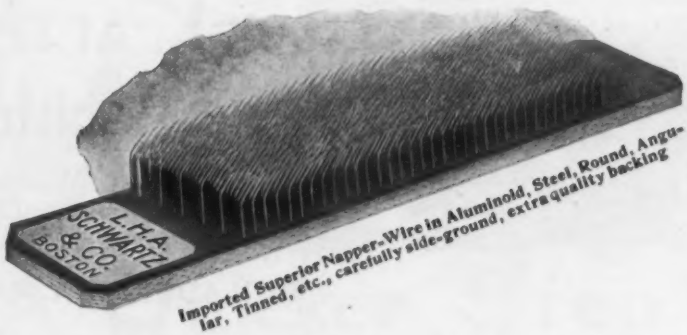
Have you a Kron in your plant?

If not, write for our catalogue showing the various types of Dormant and Portable Scales, with full description, and learn what these scales will do for you in your plant.

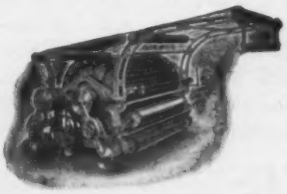
American Kron Scale Company

39 Cortlandt Street, New York

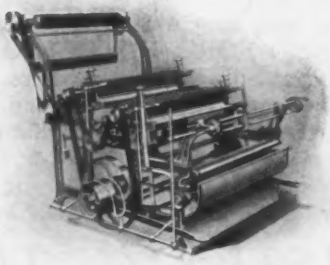
1029-1031 South Wabash Avenue, Chicago, Ill.



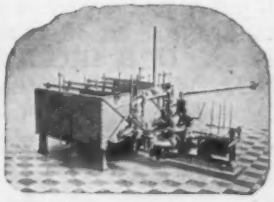
Imported Superior Napper-Wire in Aluminoid, Steel, Round, Angular, Tinned, etc., carefully side-ground, extra quality backing



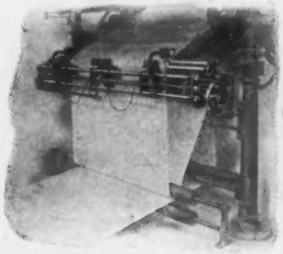
Monforts' Napper



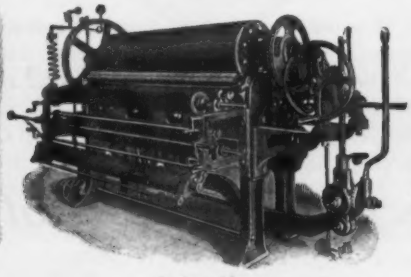
Monforts' Special Shear for Napped Cloth



Cross-Spool Dyeing Machine



Automatic Electrical Feeder for Tentering, Drying Machines, Calenders, Etc.



Rotary Press

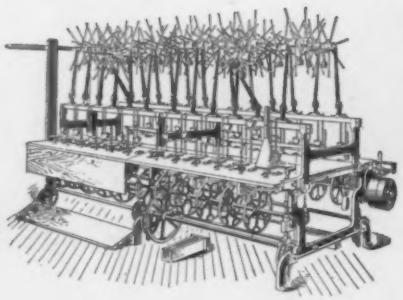
Klug Dry Decating Machine

New Monforts' Emery Cloth Grinding Machine, Paul Klug Dry and Wet Decating, Rotary Presses, Fulling Machines, Tentering and Drying Machines with Automatic Electric Feeder, Cross Spool and Beam Dyeing. The new process Niederlahnstein Automatic Hank Mercerizing, Card and Napper Clothing, etc.

L. H. A. SCHWARTZ & CO.

40 Central Street, Boston, Mass.

Dealers in China, India, Egyptian and American Cottons



JACOB K. ALTEMUS
Textile Machinery

For Winding, Warping Spooling and Kindred Use

2824 NORTH FOURTH STREET
PHILADELPHIA, PA.

Second Announcement

IF you did not get our first announcement or did not read the first one you made a mistake. SEND FOR ANOTHER ONE. It is of great value if you want to wind Artificial Silk and know where to get the WINDER to do the work right, direct to bobbin from the skein, and no other way, on our machine. OUR IRONCLAD GUARANTEE is that this is the most SUCCESSFUL Winder in existence and a WONDER for *quick* and *accurate results*. Provisions are made to backwind from bobbins and also the spools if you have any yarn in stock already on spools (in the future buy in skeins only).

LISTEN TO THIS

To Hosiery, Underwear, Sweater and Knit Goods Manufacturers:

Once you use our Winder you will not need to use any other make. Let us have the opportunity to prove to you the value of our machine, and with our knowledge of how to handle the yarn and wind same, WE CAN SAVE YOU MONEY and earn the price of the machine in a short period. Our Winder is TOO VALUABLE TO IGNORE, so we know we will hear from you for further information.

The Secret of Successful Knitting

depends upon CORRECT AND ACCURATE WINDING and the right bobbin to use, which has been successful from the start. This Winder has been prepared to meet all conditions. Also bear in mind that our success in Mercerized skein winding is worthy of your attention.

FOUR DISTINCT TYPES OF WINDERS

as follows:

ALL TIME, LABOR AND MONEY SAVERS

1. ARTIFICIAL SILK and SILK SKEIN WINDERS
2. MERCERIZED COTTON SKEIN WINDERS
3. BACK WINDERS from Cones to Large Bobbins and also for Splicing Yarns
4. SWEATER AND KNIT GOODS WINDERS

WRITE FOR INFORMATION—MENTION THE TYPE YOU ARE INTERESTED IN

A Quicker Step!

A business man recently told us: "I bought our three Reo Motor Trucks primarily because I saw that they would save money over the old method of hauling. But I am delighted to find another advantage. They have keyed up our entire business—in every department—to a quicker step."

Doesn't that give you a big idea for your own business? Textile manufacturers know the value of getting materials into the plant quicker, and getting the finished product away, just as quickly as it can go through your shipping department. It is better to make the workmen hurry to keep up with the materials, than to hurry the materials to keep up with the men. With a Reo, you can cut out costly delays of any kind, and bring your entire organization up to a faster, busier scale of efficiency.

Users of Reo Trucks say there has never been another motor truck built to equal it.

The American Sash and Door Co., Kansas City, Mo., recently wrote:

"Our hauls are approximately 40 miles per day, full capacity loads, and our truck is averaging 5½ miles per gallon, over a variety of road surfaces. We have spent absolutely nothing for repair parts, and the ease with which the truck takes its load has been a revelation, in the ability of a truck of its price to keep up its end with the higher-priced trucks in our fleet."

We are getting this kind of evidence from all parts of the country and in all lines of business. The remarkably low price of the Reo makes business men more critical of its performance than they would otherwise be, yet a careful inspection of this splendid truck never fails to win the highest praise.

Here are some of the features that mark the Reo as the most advanced type of medium heavy-duty motor truck now on the market; Reo Sectional Radiator, of 24 separate interchangeable units, may be repaired on the road anywhere; motor, clutch and transmission are cushioned on a sub-frame, away from jars and road-shocks; left-side drive, and the best and handiest center control ever brought out: big armored front frame; demountable driver's cab; gas headlights and Prest O-Lite tank, and many other details of design and construction that mark the utmost advance in modern engineering practice.

These features mean sure, unbroken service, low upkeep cost, and that wide margin of safety that a motor truck must have to meet the frequent emergencies of extra service, bad roads and overloading, that cannot be otherwise forestalled.

Write us about your hauling conditions, and we will gladly offer you our advice, whether or not you can use Reo Trucks to advantage. A Reo Motor Truck catalog, and other useful information at your disposal. Write today.

REO MOTOR TRUCK CO., LANSING, MICH.

$1650
F. O. B. Lansing
Chassis Only
Body Extra

REO
Model J
Two Tons Capacity

SMITH, DRUM & CO.

"BUILDERS OF THE BEST"

Labor Saving Machinery for Dyeing, Singeing and Finishing

HOSIERY

IN SULPHUR, ANILINE, DEVELOPED BLACKS AND COLORS
POWER SCREW PRESSES and MERCERIZING MACHINES

SAVE LABOR and **DYE STUFF** and do **BETTER WORK**
in your dye house by using

Smith, Drum & Co. Machines

Full Particulars on Application

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Cumberland Streets,
Philadelphia,
Pa.

Southern Agent
H. G. MAYER
Realty Bldg.,
CHARLOTTE, N. C.

LAWSON'S

Hope Foundry, LEEDS, England

BRANCH OF

Fairbairn Lawson Combe Barbour, Ltd.

MAKERS OF MACHINERY FOR

Preparing and Spinning

Flax, Hemp, Tow and Jute

Special Machinery
For the Manufacture of
Twines, Rope Yarns and Binder Twine

Good's Combined Hackling and Spreading Machines.

Long Reach Screw-Gill Drawing Frames. Chain-Gill Drawing Frames with Apron Heads.

Patent High-Speed Horizontal and Automatic Spinning Frames for Manila.

Improved Laying Machines.

Haskell-Dawes Tubing Twisters.

Brownell's Patent Twisting and Laying Machines for Twine.

N. B.—Complete Plans and Estimates for Flax, Tow, Hemp and Jute Mills, Trawl Twine Factories and Steam Ropeworks.

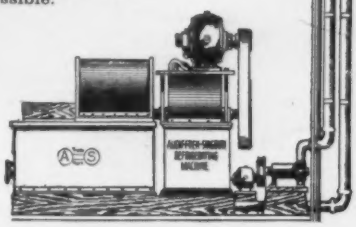
A Drinking Water System that Promotes Health and Saves Money

Do away with the germ-carrying drinking cup, the unsanitary water cooler and the expensive spring water bottle in office and mill. Replace them with J-M Bubble Drinking Fountains connected by city water pipes to the

J-M DRINKING WATER SYSTEM
(USING THE AUDIFFREN-SINGRUN MACHINE)

This system insures a pure supply of iced water at an even, healthful temperature. Prevents lips from coming in contact with anything but the water. Promotes health and efficiency. And saves money.
The "Audiffren-Singrun" is the only practical small refrigerating machine on the market. So simple that any intelligent man can run it. Nothing to get out of order. No ammonia or dangerous gas of any kind. Explosion impossible.

Write our nearest Branch for full particulars



H. W. JOHNS-MANVILLE CO.

JOHNS-MANVILLE SERVICE COVERS THE CONTINENT

Albany	Cleveland	Louisville	Philadelphia
Baltimore	Dallas	Milwaukee	Pittsburgh
Boston	Detroit	Minneapolis	San Francisco
Buffalo	Indianapolis	New Orleans	Seattle
Chicago	Kansas City	New York	St. Louis
Cincinnati	Los Angeles	Omaha	Syracuse

THE CANADIAN H. W. JOHNS-MANVILLE CO., LIMITED.

Toronto Montreal Winnipeg Vancouver 2124

MAKE YOUR SHODDY PICKERS PAY

Mr. Manufacturer—You can make your rag and shoddy pickers and lumpers pay.

Save 25 to 65% of the power required.

Gain durability.

Save in maintenance expense.

USE

SKF Ball Bearings

Put them on your present machines as well as on new ones.

No machine work required to install these bearings.

No repairs.

Write,
stating your requirements

Increase Your Production

SKF BALL BEARING CO. 50 CHURCH ST. NEW YORK

BIRCH BROTHERS

ALBERT BIRCH, TEXTILE MECHANICIAN

SOMERVILLE, MASS.

Starch Mangle.—This is the two-roll machine, with brass and rubber rolls. Mangles built with rollers of any material or number desired. Send for circular.

BIRCH TREE.

"Coronation"

Piece-End

Sewing Machine

Sent on trial most anywhere

Sews any fabric, thick or thin, wet or dry, without change

Fine Stitch or Coarse Stitch

Send for Circular

Also Makers of

Dyeing and Finishing Machinery

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Once the pioneers - always the leaders. TEXTILE PRINTING MACHINES for all requirements. Our experience and our equipment is at your command.

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There's a vast difference between *belt* cost and *service* cost. *Service* is what you pay for. Goodyear Beltings anticipate and meet every condition for efficiency belts in power plants—from high-power main drive belts to belts for lightest work and small pulleys. Every Goodyear Belt is built to meet special definite specifications for exacting service.

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The master belt. For main drives. Made of 36-oz. special weave duck—woven to specifications to minimize stretch and to insure maximum strength. Only the highest grade rubber friction is used. A belt of life, power and action. Made in various widths for different size power plants. Made "endless" when desired.

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Designed especially for high speed and small pulley conditions. Hugs tightly.

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For general transmission and drives. No slipping. No break-downs. 100% efficiency. "Klingtite" has a frictioned surface. "Thor" is rubber-covered. Both give ideal pulley contact. Each delivers every ounce of power. Stretching practically nil.

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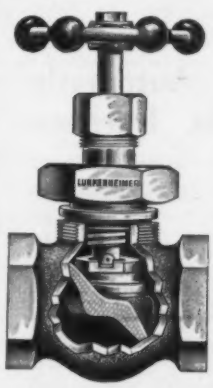

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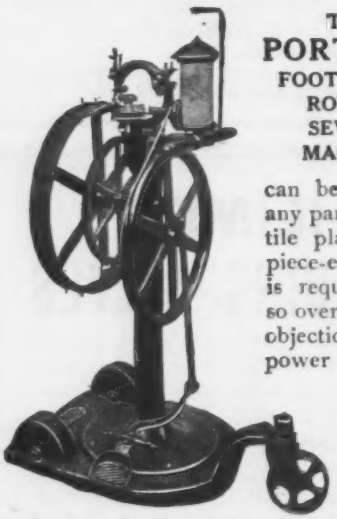

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FOOT-POWER
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SEWING
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can be used in any part of a textile plant where piece-end sewing is required, and so overcomes, all objections to a power machine.

The cloth is stretched to a large feed wheel connected to looper shaft, which can be instantly detached.

By a device peculiarly our own, needles do not break and stitches are all uniform length, and feed of cloth wheel is positive.

It will sew Cotton or Woolen Goods, Thick or Thin, Wet or Dry.

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Satisfactory operation of all machines guaranteed.

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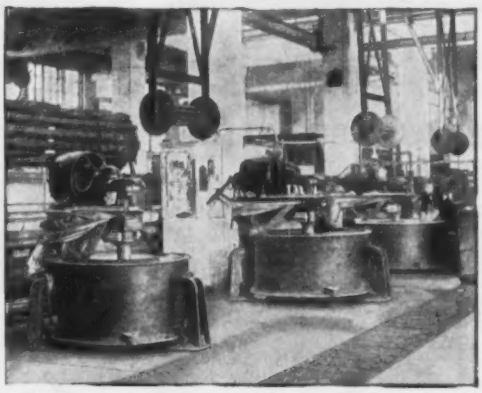

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The application of Schaum & Uhlinger Centrifugal Machines is not confined to the extraction of liquid from raw material. They are just as economical and efficient when used in the drying of finished goods. The picture above shows three electric-driven Schaum & Uhlinger Centrifugal Extractors in the plant of the Roxford Knitting Co., Philadelphia, extracting dye liquid from goods in the piece. The Roxford Knitting Co. is but one of over 1350 firms in widely differing industries who use various types of

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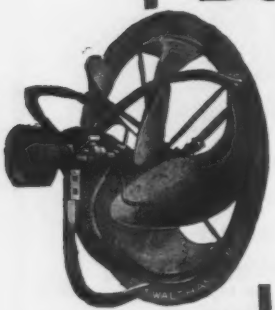

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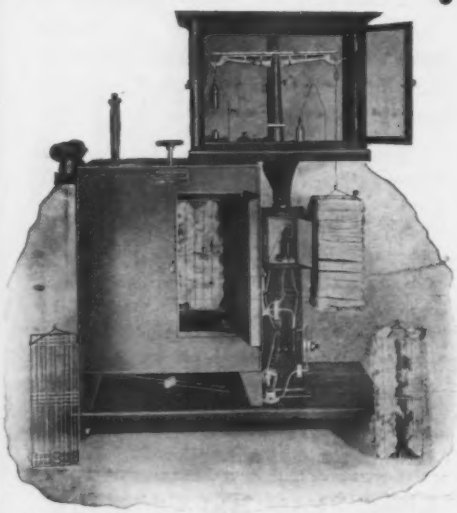

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The size of all yarns varies with moisture.

The strength of all yarns and fabrics varies with moisture.

The value and quality of all textile products vary with moisture.

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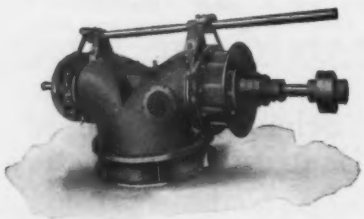

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ROTARY FIRE PUMPS

Textile Wet Finishing Machinery

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leaves the goods with that peculiar soft feeling so much to be desired

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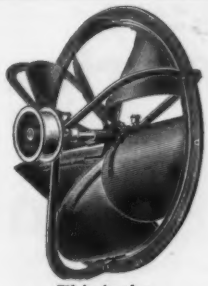

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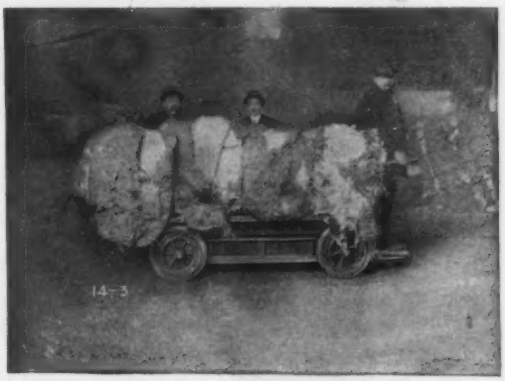

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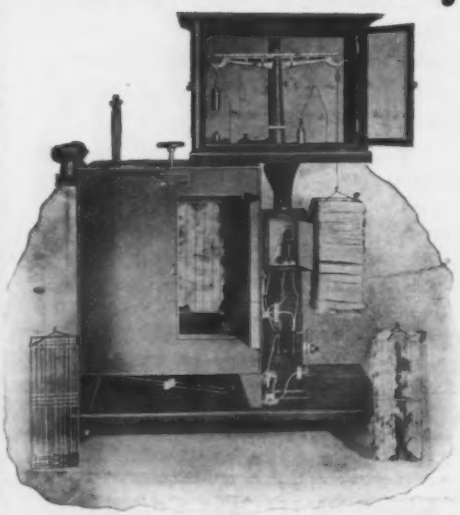

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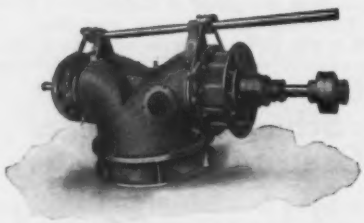

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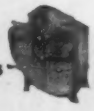

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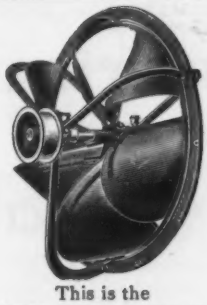

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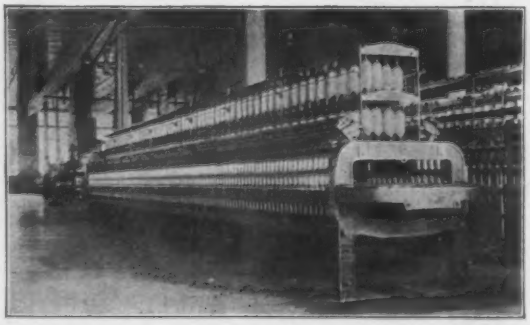

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Adjustable *Reversible*

Durable *Noiseless*

This Is the High Speed

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It matters not what the special conditions or peculiarities of your mill we can supply a fan for your needs—and we can show you that

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make it possible to run your machines at precisely the right speed to produce the very finest goods and at the same time increase the production of each machine, without a cent of extra expense for power or labor.

There is just one speed at which a certain piece of work can be done best, and with

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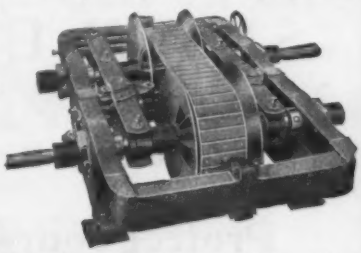
a turn of the hand wheel gives you that speed. It doesn't matter what your speed control proposition is, we can solve it satisfactorily for you.



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may be applied to any machine requiring from 1 H. P. to 150 H. P. Gives any range of variation up to 10 to 1.

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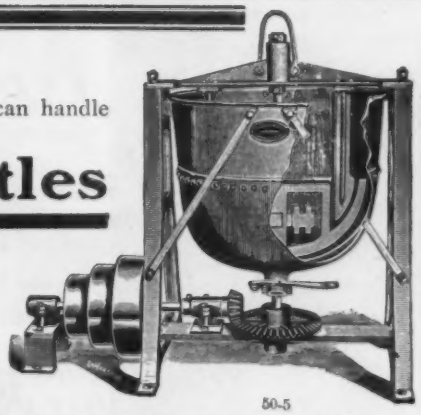

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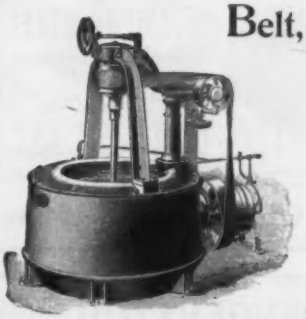

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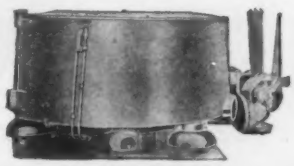

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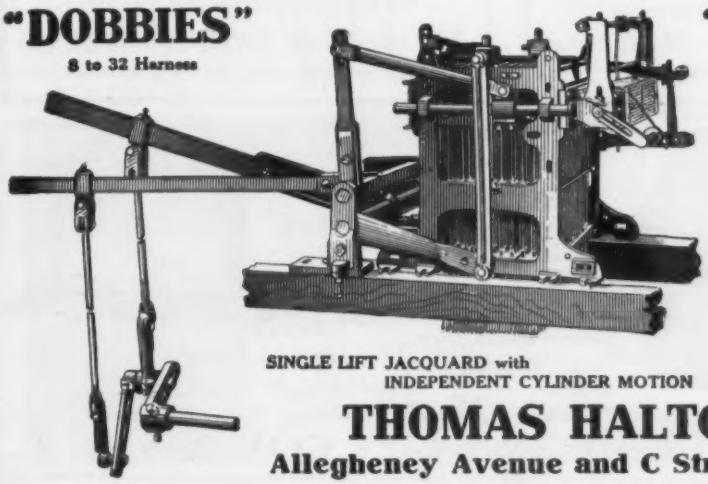

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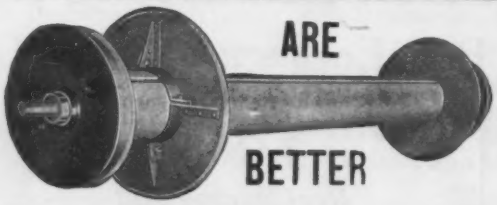
You can reduce your overhead expense



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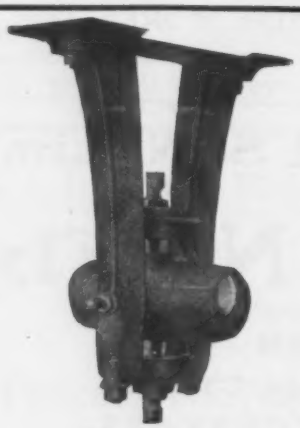

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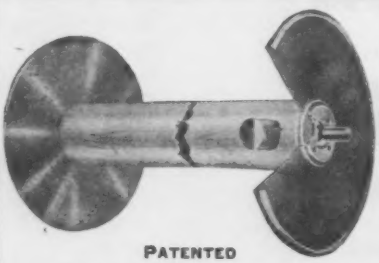

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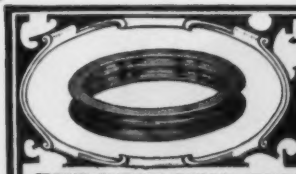

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BADISCHE COMPANY

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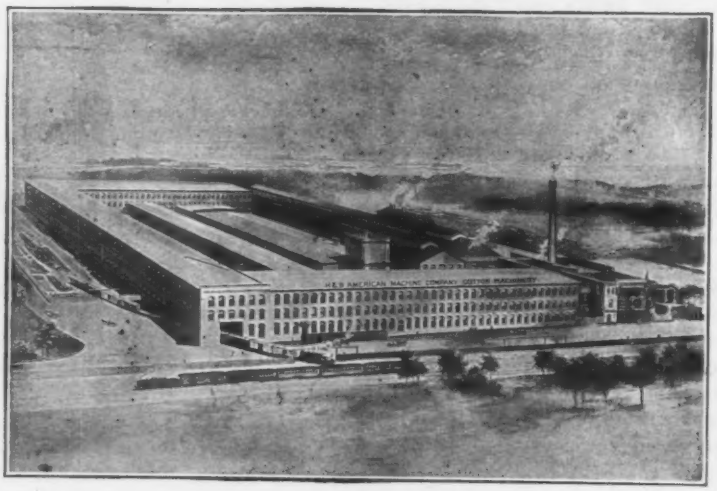
Correspondence

We solicit correspondence on textile subjects. Articles accepted will be paid for. Name and address must always be given, not necessarily for publication. Subscribers are invited to make free use of our Questions and Answers Department; correspondence is strictly confidential.

COTTON MACHINERY



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TEXTILE WORLD RECORD

JUNE, 1914

Monthly Comment.

Government Aid to Wool Growing

For years we have been calling attention to neglect of the wool growing industry by the United States government, a neglect that was made more conspicuous by the elaborate and expensive system of supervision which the government maintained for other industries, among which cotton growing has been and is a conspicuous example. Cotton has been a pet of the Departments at Washington, and the officials have supervised every step in the process of production from the planting of the seed to the marketing of the staple. Not satisfied with this, the Department of Agriculture has extended its activities into the carding, combing and spinning of cotton. It has seemed to be a matter of but a short time when weaving, dyeing, printing, bleaching and finishing cotton goods would be added to the official cotton curriculum. If this fostering care of cotton by the government is right, the neglect of wool is surely wrong. That is the view we have taken for years, and it is gratifying to find the National Association of Wool Growers waking up at last to this discrimination against the great industry it represents. In a recent statement, S. W. McClure, the secretary of that organization, called for a fairer distribution of government aid, and also asked that the statistics of wool growing be made worthy of confidence. Following is an extract from Secretary McClure's statement:

One of the things that has favorably affected the price of wool in the last two months is the appearance of the actual shortage that existed not only in the United States' clip, but also in the world's wool clip last year. Those interested in handling wool and using it in the eastern markets of this country have used every effort to belittle the talk of wool shortage in the 1913 clip. The national association of wool manufacturers gives an estimate of the year's product on December 31 of each year. At the close of 1912 they estimated that the clip of the United States amounted to 304,000,000 pounds. They now estimate the clip of 1913 amounted to 296,000,000 pounds, or a decline of but 8,000,000 pounds. All the eastern trade papers have taken the position that the 1913 clip was practically as large as that of 1912.

Last August the National Woolgrowers' Association made an estimate that the 1913 clip would be at least 25,000,000 pounds below the clip of the preceding year. Developments of the last month show that this estimate of 280,000,000 pounds is the nearest correct of any made. Unfortunately for the wool industry no accurate method has been devised for showing what the wool clip is and up to the present time this estimate has been left entirely in the hands of wool dealers and manufacturers who have twisted it around to suit the immediate needs of the market. The United States department of agriculture estimates the production of all other crops of importance except the wool crop. As our wool crop last year brought $56,000,000, it is worthy of some attention on the part of the department of agriculture. It is the hope of the wool growers that this department will take the matter of reporting our wool production in hand so that wool growers may have accurate information from unprejudiced sources.

The sheep industry has been and is now one of the most important in the United States and it has contributed more to the development and upbuilding of the west than any other single industry, yet it has never received either from the United States department of agriculture or from the commercial bodies, the attention or consideration that it merited. In fact, the west has for-

gotten the importance of sheep husbandry and all one hears nowadays is about the homestead.

While every state should be interested in the settlement of its land, it must not be forgotten that a large portion of our western lands are suitable only for grazing of livestock. To show what influence sheep have on prosperity of a community, I have a statement of the expenses of a sheep outfit not far from Salt Lake. This shows that to maintain 7,000 sheep a year $23,784 was expended for labor and supplies. When this ratio of expense is applied to all the sheep in the west it begins to look as if the sheep industry was the mainstay of many western cities.

The Numbering of Yarn

Fourteen years ago an active campaign for the establishment of the metric system in the world's textile trade was begun at the Paris Congress for the Unification of Yarn Numbering. The name of the Congress was misleading because the participants desired unification on a metric basis only. The campaign ended in failure because textile manufacturers were awakened in time, first in the United States and then in Great Britain, to the fact that the success of the agitation meant for them a loss of the priceless uniformity of weights and measures now established, and the substitution of a confusion of which no one could see the end. The enduring character of the victory won by those who defended real uniformity against the metric attacks at that time is becoming evident now at the end of fourteen years. The textile trade is developing, with the English standards predominant, and every spindle installed on that basis places a disturbance of this uniformity still farther beyond the boundaries of the possible. Evidence of this is supplied by the following admission by the "Zeitschrift fuer die gesamte Textil-Industrie," Leipzig, in its issue of May 13th:

> The object of the International Yarn Numbering Congress held in Paris in 1900 to unify yarn numbering throughout the world on a metric basis within a reasonable time, has not been attained. The metric system of numbering yarn is used by worsted spinners of all countries except England. Although possibly those carded woolen spinners which have not yet adopted the metric system would conform to that method of numbering, the insuperable difficulty has been to induce the English cotton spinners to accept the international metric standard. The death of a well known merchant of Alsace, who for many years was a leader in the movement to establish the metric system in the textile trade, has been a serious setback in this work, while the other supporters of the metric system have become discouraged owing to the failure of their previous efforts.

Coming as this does from an advocate of the metric system, its significance as to the metric failure is not lessened by the evident misstatement regarding the numbering of worsted yarn.

Imports of Textile Materials

The following table shows the imports of various classes of textiles for March, 1914, as compared with March, 1913 (quantities indicated by value unless otherwise stated):

	1913	1914
Raw cotton .....lbs.	13,944,414	15,431,352
Value	$2,500,546	$2,507,742
Cotton Goods:		
Cotton thread	442,062	458,658
Cloths .....sq. yds.	3,860,938	7,543,147
Value	$721,902	$1,402,071
Handkerchiefs	36,304	20,513
Laces	2,645,518	2,954,152
Pile fabrics	105,489	94,278
Waste .....lbs.	5,326,676	2,067,840
Value	$259,724	$99,109
Knit Goods	286,130	783,724
Other manufactures and wearing apparel	882,940	1,201,271
Fibers, flax, hemp, jute, etc. .....tons	41,696	42,937
Value	$5,165,266	$5,341,434
Fiber manufactures	7,189,118	7,836,641
Silk, raw	6,716,090	7,521,675
Silk manufactures	2,437,253	3,294,046
Artificial silk .....lbs.	257,355	401,929
Wool	22,063,830	36,596,612
Value	$4,262,694	$8,002,037
Wool Goods:		
Carpets	311,837	379,950
Cloths	328,974	1,396,910
Dress goods	225,973	740,928
All other goods	260,704	943,024
Wool waste .....lbs.	....	1,315,731
Value	....	$194,303

Standards for Manila Hemp

A law was enacted in the Philippines last February, establishing standards for hemp fibers. Last month Murad M. Saleeby, fiber expert of the Philippine Bureau of Agriculture, visited this country and conferred with textile manufacturers and hemp brokers with a view of obtaining information for use in drafting regulations for carrying out the new law. He has since visited England for the purpose of conferring with British brok-

ers and manufacturers. Following is an abstract of the leading provisions of the new law:

1. The Director of Agriculture is authorized to establish standards and grades for manila hemp, maguey and sisal and is required to publish designations and marks for such grades within six months of the passage of the Act.

2. No person, association or corporation shall engage in grading manila hemp, maguey and sisal without a permit.

3. Private marks or brands may be placed on the bales in addition to the official marks.

4. All the fibers named, which are intended for export, shall be pressed in bales of the following dimensions and length: Length, 39 3/8 inches; width, 19 1/2 inches; height, 21 1/2 inches; and weight, 275 pounds. These dimensions and the weight may be changed by order of the Director of Agriculture if there is danger of injuring the fiber by excessive pressure.

5. Every shipment of any of the fibers named must be accompanied by a certificate of inspection.

Slowing up in Germany

The report of new capital invested in the German textile industry for the first three months of 1914 shows a heavy shrinkage as compared with the corresponding period of the seven preceding years. For the first quarter of this year the capital invested in new mills and extensions of all plants amounted to only 2,150,000 M ($516,000), as compared with 6,890,000 M ($1,653,600) for the first quarter of 1913. This year's shrinkage in the German textile industry is shown even more clearly by the following comparison of new textile capital for the first quarter of each year since 1907:

1907	$4,320,000
1908	2,407,200
1909	1,377,600
1910	4,142,400
1911	1,406,400
1912	2,781,600
1913	1,653,600
1914	516,000

Instead of providing new mills to supply an increase in the demand for textile goods, the German textile manufacturers are now facing the problem of finding a market for the goods produced by mills already equipped for business. Naturally they turn to the United States, the best market for textiles, and will bend their energies to the work of selling here the surplus products resulting from the slackening of business.

Home and Foreign Trade in Cotton Goods

A correspondent of the Manchester Guardian has recently been pointing with pride to what he calls the "phenomenal growth" of the cotton goods export trade of Great Britain, which amounted to £67,548,000 ($330,985,200) in 1899 and £127,207,000 ($623,314,300) in 1913, an increase of £59,659,000 ($292,329,100) in fifteen years. Even more impressive is a comparison of the British exports with those of Germany, the United States, Switzerland, Italy and Japan. The cotton goods exported by these five countries amounted to £27,428,000 ($134,397,200) in 1899 and to £60,642,000 ($297,145,800) in 1912, an increase of £33,214,000 ($162,745,600). Following is a table showing the value of cotton piece goods exported since 1899 by Great Britain as compared with the exports of the same class of goods by five countries, Germany, France, Switzerland, the United States and Japan:

Exports of Cotton Cloth

Year	British	Five Countries	British Excess
1899	£50,862	£13,564	£37.298
1900	52.385	13.560	38.825
1901	56.502	13.160	43.342
1902	55.215	16.119	39.096
1903	55.267	16.980	38.287
1904	64.078	15.587	48.491
1905	70.821	23.183	47.638
1906	75.378	26.246	49.132
1907	81.049	23.222	57.827
1908	70.231	17.947	52,284
1909	68.279	20.077	48.202
1910	78.685	21.145	57.540
1911	90.513	22.589	67.924
1912	91.621	...	...
1913	99.039	...	..
	14 years' gain, 48.117		

This increase of export trade should not be confused with the development of cotton manufacturing in the respective countries. There were, for example, 46,000,000 spindles in Great Britain in 1907 and 54,522,554 in 1911, an increase of 7 1/2 per cent. in the four years. The number of spindles in the other five countries increase 10.8 per cent. from 45,349,395 in 1907 to 50,264,814 in 1911. During the same period the British exports of cotton cloths increased 11.7 per cent., while the exports from the other five countries show a decrease of 2.8 per cent. This comparison shows that Lancashire's

boast that in the cotton goods export trade she "stands forth in undisputed prominence and unassailable strength," even if well-founded, does not necessarily mean pre-eminence in the development of the cotton industry. As a matter of fact, in spite of the "phenomenal" development of British exports of cotton goods, the proportion of British spindles to the total for all countries shows a decided decrease, having fallen in the past six years from 44.4 per cent. in 1907 to 38.8 per cent. in 1913.

Furthermore, the strength of British export trade in cotton goods is by no means as unassailable as the Guardian's correspondent would have us believe. The exports of cotton cloths from Great Britain in December, 1913, amounted to 530,692,300 yards, of which 267,671,900 yards, or more than 50 per cent., went to British colonies. Seven-eighths of these exports to British colonies went to crown colonies which are forced to admit British goods free of duty. Thus we find that 44 per cent. of British exports of cotton cloth rests on the unstable foundation of compulsory free trade with crown colonies. The insecurity of this trade results from the world-wide tendency for each country to provide its own supply of goods to meet domestic needs, so far as that can be economically done. India, which in December, 1913, took 216,618,600 yards of British cotton cloth, or 41 per cent. of the total British exports, has for years been agitated by a movement to make the country self-supporting so far as cotton goods are concerned, by means of some kind of protection to Indian industry. A large proportion of the 315,000,000 inhabitants of India are now living in a chronic state of poverty and misery, with famine frequently carrying away millions of them. A great improvement in their condition would result from a change by which those now idle would produce the cotton goods purchased from Lancashire. The realization of this fact is making India protectionist as it has made Canada, the United States, and is fast making Great Britain herself. India is illustrating Lincoln's conception of protection. Now she is getting the goods and Lancashire is getting the money; the Indian hope is to change this and get both the goods and the money. And in this hope is found the vulnerable British heel, which should temper the pride of Lancashire in the development of her export trade in cotton goods.

—÷—

International Cooperation

The "Textile Mercury" has this to say regarding the plans to establish in the Southern States a system of warehousing for the American cotton crop:

> Two methods appear to have been proposed: one, a system of warehouses owned and controlled by the State governments; the other owned and controlled by large corporations. We have not very much faith in either. We can see the corporation ownership developing into a huge money-making trust, in which case the last stage of warehousing cotton would be infinitely worse than the present uncertain and indiscriminate method, open as it is to the influence of rings of speculators. On the other hand, State control would be always liable to be defiled by political influences. Cooperation between growers and users of all kinds would be a better plan. A method of warehousing under such control would be more secure, and it would tend, as it increased in efficiency, to dispense with useless and expensive middlemen. . . .
>
> It would appear from all this that cotton consumers in Europe will have to look forward to the building up of machinery for controlling the sale and price of cotton more largely and precisely than has been the case hitherto. The hope, or danger, lies in the character of the ownership and control of the organization. We should have thought that it could not have been better administered for the welfare of the cotton industry than by a cooperation of cotton growers, legitimate merchants, and spinners throughout the world.

The reasonableness of the suggestion that a system of warehousing the American cotton crop should be organized and administered with the cooperation of foreign as well as American interests is not open to question. During the year ending December, 1913, the exports of American cotton amounted to 8,609,488 bales (4,481,816,598 lbs.), valued at $575,488,090. Assuming that the cost of raw material forms 60 per cent. of the value of the finished product, last year's exports of cotton from this country represent approximately $1,000,000,000 worth of cotton goods at the mill. This value and the number of people depending

on the industry and trade are greatly increased by subsequent conversion of the goods into garments and other articles. Such is the tremendous stake that foreign countries have in the American cotton crop. Any interruption in or interference with this cotton supply means a corresponding disturbance in the world's business, and, if carried far enough would cause a dislocation of the industrial and social system of all countries. The warehousing of the American cotton crop is thus a matter of international concern in which foreign, as well as American interests, should make their influence felt without the slightest question being raised as to the propriety of such action.

Moreover the matter concerns not only growers, merchants and spinners, but the general public as well. For this reason the suggestion by the "Mercury" that the warehousing of the crop be controlled by the three interests, growers, merchants and spinners, falls short of a complete solution of the problem. The public must be represented, and this can best be done by government supervision of any plan adopted. The principle of government control of warehouses is in fact recognized in the United Kingdom, as shown in the article, "Warehouses for Raw Cotton and Cotton Goods" in this issue. Such official oversight would be for the protection, not only of the public, but also of the various branches of the cotton trade, cotton growing, trading, spinning, and manufacturing.

A number of obstacles, however, are encountered when the attempt is made to put the theory of international cooperation into practice. First and foremost is the lack of an organization to represent the foreign interests. About seven years ago, in 1907, this shortcoming was in a fair way to be supplied. Two years before, in 1905, having in mind the community of interest in the world's cotton trade, we urged the New England Cotton Manufacturers Association to extend to the European Federation an invitation to an international conference of cotton growers, merchants and manufacturers to be held in this country. The Cotton Conference at Washington in 1906, and the one at Atlanta in 1907 resulted from the adoption of our suggestion. The dominating idea at both conferences was the community of interests between all branches of the trade. The unanimous sentiment of the Atlanta Conference was expressed in the following resolutions, endorsing a warehouse system and providing for a permanent organization of the Conference:

Resolved, That the International Conference of Cotton Growers and Manufacturers is of the opinion that by closer trade relations between grower and spinner a great deal of the present expense in handling cotton can be saved and the evils attendant on violent fluctuations of the market be mitigated.

We are further of the opinion that the extension of the warehouse system in the Southern States, and the creation of selling offices, will tend to bring about closer trade relations, and are, therefore, worthy of encouragement by both producer and spinner.

Resolved, That it is to the interest of all parties, from the grower to the consumer, that greater care be exercised in preserving cotton in transport from the effect of weather, and to enable this to be done this Conference feels that every effort should be made to extend warehouse accommodation for cotton in America.

Resolved, That this Conference become permanently organized by the appointment of an International Committee of Cotton Growers' and Manufacturers' Associations, and that the Southern Cotton Association, the Farmers' Educational and Cooperative Union, The American Cotton Manufacturers' Association, the National Association of Cotton Manufacturers, the British Master Cotton Spinners' Association, the Sea Island Cotton Association, and the European Continental Cotton Spinners' Associations affiliated to the International Federation be represented by two delegates each on such Committee, each Association to appoint its own delegates in due course and notify the Executive Secretary of the present Conference, C. J. H. Woodbury, 45 Milk St., Boston, Mass., of their nomination; the 14 members of this Committee to appoint a President out of the members of any one association forming part of this Conference, and that the Committee have power to appoint a permanent Secretary to assist the President, and that all expenses connected with the work of the Committee to be defrayed by the Associations represented; this organization to be subject to the approval of each Association.

Why was this plan for a federation of the world's cotton trade not carried out? Because the British cotton trade organizations failed to ratify the resolution of the Conference after the delegates returned to their homes in Lancashire. The American associations stood ready to carry the Atlanta resolve into effect, but the British organization

blocked the plan by persisting in the attempt to secure the affiliation of the American cotton manufacturing association with the recently organized International Federation. Such affiliation not only was impossible in itself, but involved the complete abandonment of the broad plan for a permanent Conference of the cotton growing, trading and manufacturing interests of the world. Thus it happens that the Lancashire cotton trade organizations are responsible for the present lack of means for international cooperation in the warehousing of the American cotton crop, over which our Lancashire contemporary naturally laments.

This situation, however, will not be without compensation if it leads to a wiser course in the future. There is talk of a third international conference of cotton growers and manufacturers to be held soon in the cotton belt. If such a conference materializes, all who participate should remember that the success of the occasion depends, not alone on sound and loudly applauded proclamations at the Conference, but also on appropriate action after the delegates have reached their homes.

A Proposed Cotton Goods Trust

For a number of years cotton manufacturing in Italy has been suffering from a variety of ills, among which are overexpansion, unsound financiering and loss of foreign markets. As a result a strong sentiment has developed in favor of a combine of producers to fix prices and regulate the output of the mills. This movement has been led by the manufacturers' association known as the Instituto Cotoniero, and the prospects have been favorable for the success of the project. Last month, however, the plans suffered a check, which may result in the abandonment of the scheme. Four of the leading cotton corporations in the Piedmont district attended a conference at Turin, and after consideration of the question, decided unanimously not to join the combine. This decision was the result of a belief that the artificial enhancement of market values was of little advantage, as it caused a shrinkge in the export trade and thus automatically contributed to a depression in prices. Only those spinners who also operated looms expressed themselves as favorable to the project.

If American, Call it American

A recent issue of the "Clothing Designer and Manufacturer" contains an article by L. Simon, who asks some pertinent questions and gives some good advice to designers, clothiers and tailors regarding the common practice of labeling their models and products with foreign names:

CALL IT AMERICAN

The most important feature of clothing making is style. An original style if taken up by the public, usually results into something like a sensation.

There are always a few questions that come to my mind when I view the different models of the designers. Why do our originators of styles nickname their models as "French," "German," or "English?"

Why are not styles that are American, made by Americans, and sold by Americans, called "American?"

If a designer wishes to make a coat with a narrow shoulder or narrow sleeve and back, must it bear the name "English?" Is that the stamp that every narrow shoulder, sleeve or back, must bear?

Our retailers think that to catch the public eye they must surround their goods with a foreign atmosphere. To name their coats by foreign names is the cheapest and easiest way. Regardless of whether it is American merchandise and style or not, the foreign tag is attached. Yes! And the trade pays for the name. The public is willing to be duped by anything with a foreign name. Why? Just because they do not know what is the American. The goods is what counts, and if you give the people their dollar's worth, whether you call it by a foreign name, or domestic, it is all the same.

We have reason to be proud of our own goods. Our tailor-shops are the best equipped of their kind in the world, and the merchandise made in them can be compared with the very best. We have scientifically studied clothing making in America and are now able to produce clothes at such reasonable prices that it is within the reach of almost all to dress comfortably and in correct style.

In view of our position in the world of clothing, for that reason, if not for the many others, we ought to give our productions American names.

I should like to suggest a motto for the rest of the American clothing world to take up and act upon. It is this: "If it is American, call it American."

Partiality for foreign goods and prejudice against home products are human traits, and catering to those weaknesses is confined to

no particular country or trade. In this issue attention is called to the case in Germany against a Dusseldorf tailor who confessed that for years he had sold wool goods made in Germany, representing them to be "genuine English." Mr. Simon complains that American designers of clothing name their models "French," "German," or "English," and asks:

"Why are not American styles, made by Americans, called American?"

The answer is easy. It is for the same reason that the Dusseldorf tailor called German goods "English;" that the Italian, Dutch, British and other exporters label their cotton cloths with marks that mislead the African or Asiatic consumer into believing they are American; and for the same reason that clothing dealers and tailors in the United States frequently sell as "imported," cloths made in American mills. And this reason is that a higher price can be obtained for the merchandise when bearing these false marks. Mr. Simon's advice to call goods American if they are American is good, but it is a vain counsel of perfection. Not until human nature is reconstructed, with prejudice and cupidity eliminated, will the clothing and tailoring trade voluntarily follow Mr. Simon's advice. The remedy for the difficulty is to be found only in making it an offense punishable by fine or imprisonment or both, to misrepresent the country of origin in selling goods. We have repeatedly urged the application of this remedy in the form of national and State laws to prevent misbranding, modeled after the British Merchandise Marks Act. Among the provisions of the British law is one providing fine or imprisonment or both for the false description " as to the place or country in which any goods were made or produced."

The suggestion that laws based on the British act be enacted in the United States has met with general favor among individuals and trade organizations. It has been adopted in framing the bill (H. R. 13492) introduced by Congressman John J. Rogers, of Lowell, Mass., which contains this provision, substantially the same as in the British law:

> Sec. 6. That the term "misbranded" as used herein, shall include any false, inaccurate, or misleading description, false, inaccurate, or misleading statement or other false, inaccurate or misleading indication as to . . . the place or country produced.

Laws modeled after the British act and enforced in all transactions, intrastate as well as interstate, will remedy many evils, including the one mentioned by Mr. Simon, that now burden both the producer and consumer of all kinds of goods.

Partiality for Imported Wool Goods

The woolen and worsted manufactures of the United States are not alone in suffering from the prejudice of consumers in favor of imported goods. So serious has the matter become in Germany that the "Verein der deutschen Tuch-und Wollwaren-Fabrikanten," Aachen, has recently issued a manifesto in regard to the partiality for English woolens and worsteds among German consumers, pointing out that in the essential features of wool manufacturing the English mills have no advantage over their German competitors. The protest is as applicable to the United States as to Germany and for that reason we give the following abstract taken from the Wochenberichte der Leipziger Monatschrift fuer Textil-Industrie:

> English cheviot and crossbred wools have for years supplied only a small part of the wools of the grades used in English mills, the deficiency having been made up by the wools of Australia and New Zealand. These Australian and New Zealand wools, as well as the yarn spun from them, are sold in all the markets of the world and are thus available for use in the mills outside of England as well as in that country. Merino wool, which is used for fine, face goods and worsteds, must be obtained by English as well as German manufacturers in Australia, South America and Africa. The German spinners are as skillful as the English and in fact excel the English in some respects in the spinning of these yarns, a fact that is shown by the exports of German yarn to England.
>
> It is noteworthy, also, that a large quantity of finished goods made in England from German yarn is exported to Germany and sold as English goods. It is also necessary to expose the error which many have fallen into in thinking that the German mills produce only cheap goods and the English only the best grade of wool goods. Low, medium and high grade goods are made in England as well as in Germany. The German mills are called upon to produce sightly and durable

products, made in attractive designs of fast colors and the best finish. Owing to the importance of the business in Germany as well as in international trade, the German woolen and worsted manufacturers should make a special effort to show that their products are equal in every respect to those of their foreign competitors. Every effort should be made to change present conditions by which foreign products are preferred to German goods.

This prejudice against domestic products and preference for imported goods, to which the Aachen protest refers, has been illustrated in a most striking manner by a case that has recently been before the German courts. A Dusseldorf jobber in wool goods had sent to the tailoring trade a large number of sample cards showing different styles of worsted cloths, bearing the inscriptions "Latest Style" over the samples and "echt englisher Cheviot" or "echt englisher Kammgarn" underneath. All of these goods, it was admitted, were woven and finished in Germany, the yarn having come from England. A number of styles which had been spun, woven and finished in England were labeled "Original englishes Fabrikat." The jobber was prosecuted for unfair competition on complaint of several competitors, and in his defense pleaded that the design did not mislead the prospective purchaser because the art of weaving and finishing was as highly developed in Germany as in England. On this remarkable defense the lower court acquitted the defendant, but the decision was reversed by the Reichsgericht and the case remanded for a new trial. Evidently the defendant considered his case hopeless for he signed the following agreement as a guarantee of good behavior in the future:

"I hereby declare that for years I have offered for sale and sold cloths woven in Germany, representing them to be genuine English goods. In accordance with an agreement made in the Krefeld court between me and the firms named elsewhere, I pledge myself not to use this misleading designation in the future under a penalty of 1000 M ($240) for each case of such use and in addition a sum of 2500 M ($600), the last named amount to be distributed as follows: 1250 M ($300) to the poor of Dusseldorf, 625 M ($150) to the people of Dusseldorf, and 625 M ($150) to the Society for care of Krefeld criminals." (It is provided that the agreement shall be published in a number of trade papers and that several cases against the defendant shall be discontinued.)

The situation disclosed by this case is not peculiar to Germany, but is duplicated in the United States and probably in other countries as well. The jobbers of wool goods and the tailors cater to the common preference for English or other foreign goods. This preference is based on ignorance, but so long as it exists the wool goods jobber and the tailor will yield to it, because by so doing they can sell goods more easily and at a higher price. This is what makes it necessary to prohibit by law misrepresentation and fraud in the sale of goods. The evil illustrated by the German case and which prevails in the United States would be prevented by the enforcement of a law modeled after the British Merchandise Marks Act, which prohibits the false description:

(a) As to the number, quantity, measure, gauge or weight of any goods, or
(b) As to the place or country in which any goods were made or produced, or
(c) As to the mode of manufacturing or producing any goods, or
(d) As to the material of which any goods are composed, or
(e) As to any goods being the subject of any existing patent, privilege, or copyright.

Adjusting a Tariff to the Difference in Cost

Italy is facing a revision of her tariff and the "Verband der italienischen Seidenstoff-Fabrikanten," in other words, the Association of Italian Silk Manufacturers, has started a campaign for protection to the silk industry to equal the difference between the Italian and Swiss (or German) cost of production. E. Rosasco, a silk manufacturer of Como, was commissioned by the Italian Silk Association to prepare a comparative statement of Italian and Swiss costs of production. His report has recently been made public, and, reduced to our currency, weights and measures is as follows:

The estimates are based on a 100-loom mill. The Italian plant is capitalized at $160,000; the Swiss, at $140,000. Interest in Italy is 6 per cent.; in Switzerland, 5 per cent. The Italian mill is assumed to have cost $60,000, which has been reduced by charging-off at the end of 8 years to $25,828; the Swiss mill cost $50,000, which has been reduced at the end of 15 years to $10,029. It is assumed that a loom in Switzerland produces 20 per cent. more cloth per day than in Italy. The Italian mill produces 322,612 yards in a year of 295 working days; the Swiss mill, 393,696 yards in a year of 300 working days. The cost of the raw material is subject to a discount of 1/4 per cent. in

Switzerland on account of the difference in exchange.

	Italy	Switzerland
General Expenses:		
Interest	$9,600	$7,000
Depreciation	2,582	1,003
Traveling, lighting, heating and insurance	3,000	3,000
Salaries	5,000	5,700
Taxes, postage, telegraph, repairs and miscellaneous	4,000	3,000
Electric power	1,700	1,350
Total general expense	$25,882	$21,053
Per 100 yards:		
General expense	$8.02	$5.35
Organzine, 2.2 lbs.	9.87	9.84
Tram, 1.1 lbs.	4.39	4.37
Labor	4.57	4.57
Dyeing and finishing 100 yds.	4.57	4.57
	$31.42	$28.70

Signor Rosasco and the "Verband der Italienischen Seidenstoff-Fabrikanten" offer this comparative statement as conclusive evidence of the amount of protection required against Swiss or German competition. Whatever effect it may have on the official Italian mind, the exhibit falls far short of being a finality with the Swiss manufacturers, if the comments of the "Mitteilungen ueber Textil-Industrie," of Zurich, are any indication. That journal questions every item in the statement. It claims that the difference in cost of raw material due to exchange is more than offset by the higher freight rate and the Swiss tariff; that the price for skein silk dyeing in Italy is 10 per cent. less than in Switzerland and Germany, as shown by the price lists of the Custom Dyers' Association. The Swiss journal scoffs at the claim that production per loom is greater in Switzerland and Germany than in Italy, and claims that the cost for traveling, heating and insurance is higher in Switzerland. No account is taken of the alleged lower cost of land and buildings in Italy. The Swiss journal disputes the claim that taxes, freight, repairs and electric power cost less in Switzerland and then as a clincher points to the fact that instead of Italian manufacturers establishing weaving mills in Switzerland and Germany, as would be the case if the Rosasco exhibit were true, it has been the Swiss and German silk manufacturers who have established branches in Italy, in order to benefit from the lower cost of production.

It is obviously impossible for one unfamiliar with industrial conditions in the three countries named, to decide intelligently between the conflicting claims as to cost, but even at this distance the Rosasco statement appears to be an absurdity. Calculating depreciation on a 15-year old mill in one case, and an 8-year old mill in the other is the most barefaced juggling of figures to show a difference in the depreciation charges. The absurdity of the Rosasco exhibit, however, arises, not so much from defects in details, which might be corrected, but from the fundamental impossibility of comparing industrial condition by calculation of comparative costs. The cost of producing textiles varies with the indefinite number and continually changing variety of fabrics in process of manufacture; it varies with the extent to which the mill is supplied with work; it varies from mill to mill because of many influences, some of which cannot be determined; it varies from day to day, week to week, month to month and from year to year in the same mill; it varies because of influences arising, not only in the textile trade, but in other lines of business. It varies in different countries and in different localities of the same country.

All these variable conditions make a comparison of the domestic and foreign costs of textile production, in other words, the difference in cost impossible as a means of adjusting protective tariff rates. Even if a determination of these costs were possible, a comparison could not be made because the manufacturers, who are the only people who could determine the costs, will not reveal them. The statement issued by the Italian Silk Association is a plain evasion of the Italian costs, which are the only cost data that the Italian manufacturers could have in their possession. Their giving figures of cost in the mills of their foreign competitors is on a par with drawing a map of the backside of the moon. Statistics of cost of production, if compiled carefully from actual records of manufacturing, are unquestionably of value in the settlement of fiscal prob

lems, but the plan to adjust the rates of a tariff to equal the difference between the domestic and foreign costs of production is impossible. It is a problem in which one unknown quantity is to be determined from two other unknown quantities. This is the view we took in July, 1908, and the experience of the past six years has served only to confirm that conclusion.

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THE PROPOSED QUARANTINE OF IMPORTED COTTON

For about a year the Federal Government has prohibited the importation of cotton seed from certain countries on account of the reported presence of the pink boll worm (Gelechia gossypiella), which for five years has caused great damage to the cotton crop wherever it has appeared. The scientists of the Department recently came to the conclusion that there was danger of having the pest carried into the American cotton belt in the foreign cotton used in Southern mills. The Secretary of Agriculture was persuaded to grant hearings on various propositions to restrict the movement of cotton into the United States when intended for use in Southern mills, and also to prevent the shipment of cotton from the Northern States to the South. The following is taken from the announcement of the hearing which was held at the Department of Agriculture, Washington, on May 15th:

This insect is found in India, the Straits Settlements, Ceylon, Burma, German East Africa, Egypt and the Hawaiian Islands. Since its introduction into Egypt, about five years ago, its ravages have increased from year to year until in 1913 they amounted to more than those of all the other cotton insects combined. In severe cases the worm has been known to reduce the yield 50 per cent. In addition to this, the amount of oil obtained from the seed is lessened from 15 to 20 per cent. To keep this insect out the barring of cottonseed has been found insufficient, for a considerable number of infested seed are usually found in the bales of lint. Since the cotton fields of the South are adjacent to many of the southern cotton mills, the danger from this infested seed is very great should any of it find its way into this section. There is, moreover, every reason to suppose that the pink boll worm would adapt itself readily to conditions in this country. As a matter of fact, its ravages might be even more disastrous than they have been elsewhere. The new quarantines will, it is estimated, keep approximately 3,500 bales of Egyptian cotton from the southern mills each year. This loss can in great measure be supplied by special grades of cotton produced in the South, and where Egyptian cotton is absolutely necessary, it will still be possible to obtain the yarn from northern establishments. There is in fact reason to believe that within a few years Arizona will produce all the Egyptian cotton needed to supply the southern mills. For these reasons it is believed that the proposed restrictions will not work any great hardship to manufacturers, and the authorities say that they are essential to the safety of cotton growers.

Most of the time at the hearing on May 15 was occupied by Congressmen Green of Massachusetts, Bartlett and Edwards of Georgia, Webb of North Carolina, and Senator West of Georgia. Mr. Green protested vigorously against the quarantine being made to include the whole of the United States and pointed out that owing to the character of the goods made in Northern mills such a measure would be the cause of great loss to Northern cotton manufacturers. The Southern representatives advocated making the quarantine general and there were a number of vigorous charges and counter charges of partisanship and discrimination against the respective sections of the country, which were evidently intended for home as well as Washington consumption.

Secretary C. J. H. Woodbury, of the National Association of Cotton Manufacturers made a statement in behalf of his organization. He stated that the manufacturers shared with the Board a realization of the danger of introducing the pink boll worm into this country, but he pointed out that to deprive American cotton manufacturers of European cotton would mean a loss of many million of dollars and result in the transfer of the business into foreign hands. Cotton manufacturers would cheerfully comply with any recommendations that might be made by the Department of Agriculture and he suggested that the danger could be minimized by burning the picker waste and seed in mills using Egyptian cotton. He stated that the value of the picker waste was so small that the loss from this cause would be trifling. The Secretary of Agriculture has made no decision in the matter at the time this issue goes to press

An Explanation and a Defense of Shoddy and Other Wool By-Products

A Statement issued by the National Association of Wool Fiber Manufacturers, Boston, Mass.

It will aid greatly in freeing ourselves from prejudice against shoddy and other wool by-products, if we keep clearly in mind the fact that the use of these materials is necessary for the existence of probably more than half of the people who now live outside of the tropics, that is, in temperate and cold climates. Wool fabrics are required to protect the body against cold, damp and sudden changes of temperature. No other textile material provides this protection, without which a majority of the people now living in comparative comfort in such a climate as that of Northern United States and Canada would perish from exposure. The survivors would be those who in the course of time became inured to the new conditions.

WOOL SUPPLY AND DEMAND

Let us consider the many forms in which wool is now used for protecting the body: Clothing, such as dresses, coats, vests, trousers, sweaters, overcoats and cloaks, underclothing, hosiery, hats, caps and blankets. In addition to these uses of wool for protecting the body a large quantity of wool is used for a variety of other purposes, such as rugs, carpets, carriage and motor cloths, felts, upholstery and horse blankets.

The raw material for these products comes originally from the sheep, and the sheep of all countries yield approximately 1,468,000,000 pounds (scoured weight) of wool each year. This in the aggregate is a large quantity, but there is a loss of about 30 per cent. in manufacturing scoured wool into cloth so that the wool grown throughout the world each year would produce 1,027,600,000 pounds of wool cloth ready to be made into clothing. This also is a large quantity, but let us consider how many there are to use it. The people living outside of the tropics number approximately 1,169,000,000, and for them wool covering is a necessity that grows greater the farther north or south they live. All of these 1,169,000,000 people must have the protection of wool, regardless of age, sex or occupation. If the 1,027,600,000 pounds of cloth made from the annual production of wool were divided equally among the people living outside of the tropics, each person would receive 14 ounces per year, equal to a

This man is clothed in 14 ounces of wool cloth, the amount that each person would receive each year if all the wool grown throughout the world were manufactured into cloth without admixture of wool waste or shoddy, and distributed equally among the people living outside of the tropics.

piece of light weight cloth 44 inches square, about enough to make a respectable girdle.

Let us keep in mind this yearly allowance of 14 ounces of cloth and then consider the approximate weight of the wool portion of various articles used for protecting the human body:

Man's suit	ozs.	56
Man's coat		28
Man's vest		8
Man's trousers		20
Man's overcoat		50
Bed blanket		80

SHODDY A PRIMARY NECESSITY OF LIFE

At the rate the world's flocks produce wool a man would have to wait four years for enough cloth to make a suit of clothes. When we consider the large amount of wool materials now used, not only for protection to the body, but for the other uses already mentioned, and the disproportion between that amount and the annual yield of wool for each person, it becomes plain that the existence of most of the people now living in temperate and cold climates depends on a supply of wool material in addition to that which comes directly from the sheep. This

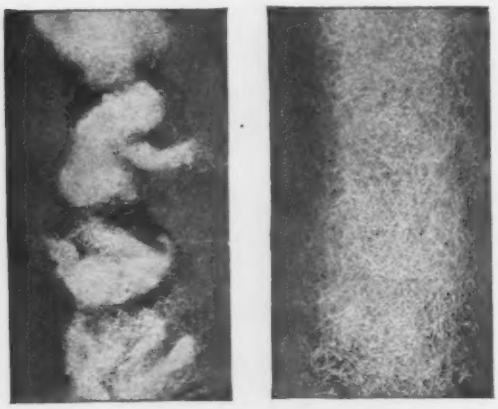


Fig. 1. Four months Texas Wool (at left)
Fig. 2. Garnetted Worsted Waste (at right)

extra supply is obtained by reclaiming the wool from articles of wool that have already been used for clothing or other purposes, and manufacturing this reclaimed wool into cloth and other wool goods. This reclaimed wool is known as shoddy, and thus we find that, not only the health and comfort of all the people living outside of the tropics, but the existence of the great majority of them, depend on the use of the material called shoddy, which is but another name for wool. If wool were not reclaimed it would be more expensive than silk.

MISAPPREHENSION AS TO SHODDY

Let us now study the material itself, the charges made against it, and compare it with wool and other textile materials. While shoddy is wool reclaimed from used articles of wool, there are a number of by-products of wool manufacture, which cannot well be distinguished from shoddy, and for that reason we will class with shoddy, not only wool that has previously been used in the manufacture of wool goods, but also wool by-products, such as noils and other wastes, made in manufacturing wool into wool goods. The charges against which shoddy must be defended are:

1. That it is obtained from rags which are dirty and liable to carry the germs of disease, with which the wearer of goods made of shoddy may easily become infected.

2. That the shoddy fibers are short and tender, and as a result that all goods containing shoddy are necessarily inferior to those made of new wool.

THE DANGER OF CARRYING DISEASE

First, as to the danger of disease. There is, of course, a liability of disease being carried, not only by old clothing and rags, but by new clothing, bed coverings, water, air and food, railway cars, boats, and in numberless other ways. In some of these cases the dangers of infection cannot be entirely prevented, no matter what precautions are taken; in others it can be reduced so as to be practically non-existent; while in still others, all danger of communicating diseases is eliminated by processes of sterilization through which the materials pass before they reach the consumer.

Take the water we drink as an illustration of the complete purification of a product. Water has always been a carrier of filth and disease germs of all kinds, much of it passing constantly through sewers to the ocean, where it is evaporated and returned to the earth where the processes of contamination and purification are repeated. We can feel certain that the purest water has held filth and disease germs in suspension, not only once, but for unnumbered times. But we continue to drink water without the slightest fear of the germs it has carried before it passed for the last time to the sea and then to the earth. Our only fear is of the disease germs that water may have gathered since it passed through this natural process of evaporation and condensation.

Consider now the case of wool, "pure

wool," as some maligners of shoddy are prone to call it. It is the natural covering of the sheep, an animal which is a constant prey to a large number of diseases, some of which, like anthrax, have caused so many serious cases of infection, some of them fatal, among mill operatives as to necessitate fumigation of suspected wool at ports of entry. The presence of disease among sheep will not be denied by any one familiar with wool growing, so it will not be necessary here to enumerate or describe the many loathsome diseases to which the animals are subject. For the benefit, however, of those who may have been misled by the term "pure wool," we will give the following extract from an editorial on diseases of sheep, which appeared in the American Sheep Breeder for March, 1914:

Such an ewe produces myriads of infective germs. Her discharges contaminate the floors of the sheep pens and yards. Her wool carries the germs. If she recovers, and that is rare, she may still have a dangerous abnormal discharge from her vagina; or her udder may become diseased, and that disease also tends to prove contagious. Let the young shepherd dread such an ewe as one would a person visibly afflicted with smallpox. She is as certain to spread the disease in the flock as would the smallpox patient in the home.

THE CASE OF RAGS AND SHODDY

Turning now to rags, from which shoddy is made, let us go to Dewsbury and Batley, adjoining towns in England, and the center of the world's rag and shoddy trade, where more than 100,000,000 pounds of woolen rags are received every year, gathered from all parts of the world. Following is the testimony of unimpeachable witnesses regarding the hygienic conditions at that rag and shoddy center:

H. E. Whitaker, Registrar of Births and Deaths at Batley: "In the whole of my 23 years' experience as registrar I have never registered or known of a death from any zymotic disease among the rag workers."

Dr. Clements, Health Officer, Batley: "The town is practically without industrial disease. We are far freer from industrial ailments than towns like Bradford where rags are not worked at all, but only wool."

Dr. Halliwell, Health Officer, Dewsbury: "It is perfectly true that no epidemic disease has ever been traced to rags."

Here are some comparative statistics supplied in December, 1913, by J. A. Hunter, Hipperholme, Halifax, England:

For further evidence I refer to the expenditure of last year on Contagious Diseases Account by the Batley Corporation. The sum was under $19, of which $14 went in advertising. On the Infectious Diseases Hospital (cost $14,000) the whole outlay was under $400. The death rate of Batley (30,000 population) was 18.1 per 1,000 in 1907 and 18.3 in 1906. Dewsbury (28,000 population) has a mean death rate also of 18 and the adjoining town of Ossett in which 92 out of a total of 143 workshops are devoted to working rags, has a five-year average of 17. Rags are safe, for the death rates in no significant way differ from those of cotton, wool or other densely populated manufacturing

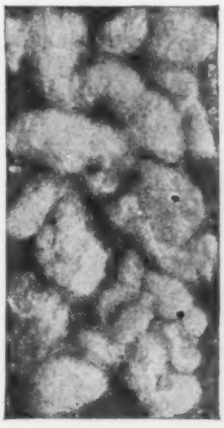


Fig. 3. Shearlings Wool (at left)
Fig. 4. Shoddy reclaimed from cloth (at right)

towns. For example, mortality in Batley and Dewsbury is as nearly as may be identical with that of Oldham, where only cotton is spun.

Rags and shoddy can, of course, carry disease germs, just as these germs can be carried by water, food, air, railway carriages, mail matter, and in an indefinite number of ways. The evidence shows, however, that so far as disease is concerned there is less hazard in handling rags and shoddy than in handling wool and many other materials.

CLOTH MANUFACTURING IS A PURIFYING PROCESS

If we examine the methods by which wool shoddy is reclaimed from used goods and again manufactured into clothing, we find processes of sterilization and purification as certain as those provided by nature for the purification of the water we drink. Let us follow a lot of wool rags from the time they are collected until they are manufactured into cloth for wool garments.

One of the first operations is to carbonize the rags to remove cotton and other vege-

table material. This consists in soaking the rags in a solution of sulphuric acid and then baking them at a temperature of 212° to 250° F.

Frequently the next process is to color the rags, although in some cases this is done after the rags have been opened into a fibrous mass, known as shoddy, or after the material has been made into cloth. In the process of dyeing the material is boiled for an hour or more, this boiling being repeated in the case of many colors. One of the most thorough and reliable methods employed by surgeons for sterilizing their instruments consists in boiling in water, the boiling temperature of 212° F. destroying all disease germs. Thus we find that the rags or shoddy which have been completely sterilized by the carbonizing process are subjected to one and sometimes two additional sterilizing operations, consisting of boiling in solutions of chemicals and dyestuffs, during the process of manufacturing into cloth. Furthermore wool goods are thoroughly scoured with soap, alkali, and warm water, so that the material, sterilized by repeated boilings, is freed from all impurities and foreign matter before leaving the mill. The manufacture of wool, rags and shoddy into cloth is a purifying and sterilizing process as thorough and certain as that through which water passes after it flows into the sea and before it again falls in the form of rain; as thorough and certain as the sterilizing process to which instruments and bandages are subjected before being used in our hospitals.

A COMPARISON OF NEW WOOL AND SHODDY

We have now to judge of shoddy and wool by-products by the fabrics or other articles into which they are manufactured. There is no question but that the processes of manufacturing injure wool fibers so far as length and strength are concerned. It follows that wool is better suited for making cloth as it comes from the sheep than when later it is reclaimed from a manufactured product and converted into shoddy. The staple is shortened and the strength is impaired, not only by the processes of manufacturing, but also by the operation of converting it again from the manufactured state into the fibrous mass called shoddy.

The different varieties and grades of wool, however, vary widely in length, strength and other qualities, and it follows that much of what is known as shoddy is greatly superior to a large quantity of wool is made clear by the accompanying illustrations of wool, waste and shoddy. Fig.

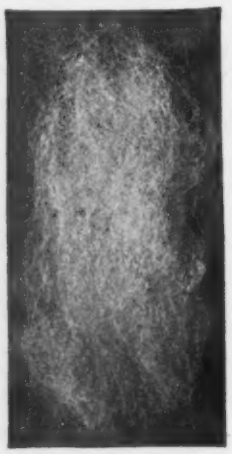


Fig. 5. Dung locks, wool (at left)
Fig 6. Worsted waste (at right)

as it comes from the sheep. This fact 1 is a sample of four-months' Texas wool; Fig. 2 is garnetted waste, a by-product of wool manufacturing and which is "shoddy" under the so-called "pure textile" bills that have been introduced in Congress; Fig. 3 is a sample of shearlings wool; Fig. 4 is shoddy reclaimed from wool cloth; Fig. 5 is a sample of wool "clips" or dung locks, consisting of about 5 per cent. of inferior wool imbedded in 95 per cent. of sheep dung; Fig. 6 is another sample of garnetted waste.

An examination of these materials shows at once that the three samples of wool, Figs. 1, 3 and 5, are materially poorer than the three samples of shoddy and waste, Figs. 2, 4 and 6.

These samples show how unfounded is the popular prejudice against reclaimed wool known under the name of shoddy, and how absurd and useless would be the so-called "pure textile" bills, such as the Lindquist, Murdock, Palmer and Myers bills, which class the inferior materials, Figs. 1, 3 and 5, as "pure wool," and stamp the better materials, Figs. 2, 4 and 6, with the mark of in-

feriority. All of these materials are wool, and when made into cloth are of equal purity and cleanliness. When mixed together in the process of manufacture these materials can no more be distinguished from each other than Wyoming wool can be distinguished from Montana wool when the two are mixed and manufactured into wool goods.

WOOL ON ITS MERITS

The value of wool fibers as raw material for manufacturing depends not on whether they have or have not been previously used in the manufacture of wool goods, not on whether one is called "new wool" and the other "shoddy," but on what the material actually is, on its length, strength, fineness, flexibility, luster, lack of luster, felting quality, lack of felting quality, in fact on that indefinite number of characteristics which make wool fibers suited for producing the inexhaustible variety of products required to supply the necessities and gratify the whims of men and women. Varying as these raw materials do, some shoddy being better than some wool, and some wool better than some shoddy, they are selected on their intrinsic merits and mixed together for manufacture into wool goods. They are also mixed, in the fibrous state or after being spun into yarn, with other textile materials, mohair, camel hair, cotton, flax, hemp, jute, ramie, to produce the particular fabric and effect desired.

If a fabric fails to protect the wearer against cold and damp, hangs badly in the garment, wears shiny, becomes threadbare, lacks durability, or is defective in any way, the cause of the defect is to be found, not in the fact that the raw material has been used once, twice or more times in the manufacture of clothing, not that it was called waste, noils, shoddy or wool, not on the proportions in which those materials were used or mixed with other textile materials, but on the intrinsic value of the raw materials irrespective of their previous condition and on the way in which they were converted into the finished product. Poor cloth is often made of new wool as well as shoddy. Good cloth is made of shoddy, noils, waste and wool by-products, as well as new wool.

CONCLUSION

Here are the conclusions of the whole matter:

(a) Shoddy is necessary for the existence of the greater number of people now living, because the sheep of the world produce but a small fraction of the wool needed to clothe the inhabitants of temperate and cold climates.

(b) There is less danger of infectious diseases from handling rags and shoddy than from wool.

(c) Disease germs that may be in wool, rags, shoddy, cotton or other textile materials, cannot be found in cloth made from those raw materials, because manufacturing is a certain and thorough process of purification.

(d) A wool fabric should be judged by what it is, not by the name given to the wool of which it is made. Much of the wool called shoddy is intrinsically better than much of the wool that comes direct from the sheep.

NUMBERING ARTIFICIAL SILK

BY ARNOLD BERNSTEIN

From Elsaessisches Textil-Blatt

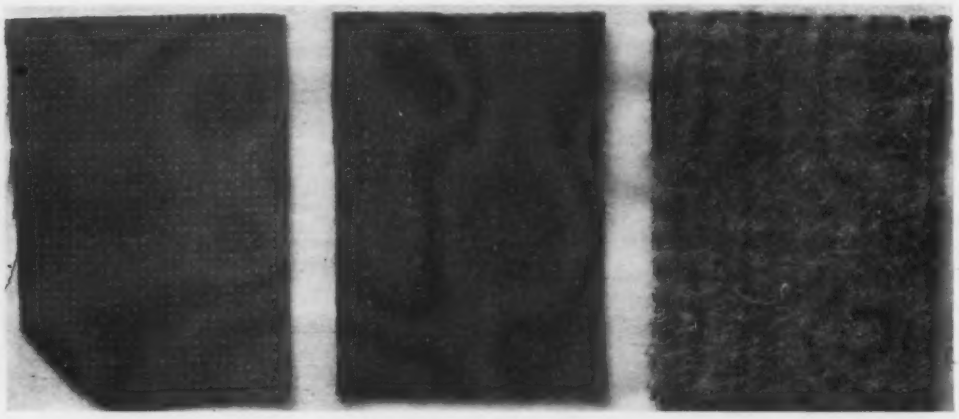
The denier system of numbering silk, indicating the weight in deniers of 400 aunes (520 yards) is used for numbering natural silk and has also been introduced for indicating the size of artificial silk. While this method is suited for natural silk, which consists of a number of elementary filaments, it is not suited for artificial silk, which varies widely in the size of the single filament. The elementary filament of the natural silk also varies in the different cocoons, but they are so handled as to give a very uniform product. It is clear that an artificial thread of one hundred deniers consisting of twelve filaments is worth much less than if made with twenty-four filaments. It is, therefore, desirable that the number of artificial silk should be written so as to indicate the number of filaments of which it is composed. This might be done by having the number of filaments follow the denier size; thus, 100-16, which would indicate a 100 denier silk thread made of sixteen elementary filaments.

THE WOOL GOODS MARKET

New York, May 30, 1914.

A peculiar situation has developed in the woolen goods market. Owing to the backward spring weather the clothing trade, as a whole, has not met with its usual success in disposing of merchandise, and many piece goods orders have been cancelled. As it was, worsted fabrics of various descriptions for which early orders were placed in quantities, they are the fabrics which have suffered most. Where carded woolen fabrics met with liberal orders at the beginning of the season, they have had to take a fair share of cancellations. These fabrics, however, received generally only small or sample piece orders, as the clothing trade considered the demand would be principally for worsteds. The sales of clothing up to the present time show an unexpected demand for carded woolen fabrics, and considerable business has been booked at advanced prices. This has been a small windfall for a number of manufacturers, but it has not been enough to cause them to be boastful of their successes.

Of all trades in the country the clothiers are the most opposed to carrying stock piece goods or to paying advances in prices. It is refreshing to see them placed in a position where they are obliged to place orders at advanced prices, even if such advances are only to cover advances in prices of raw material. Some buyers have cancelled worsteds ordered at spring prices and insisted upon having woolen fabrics in place of them, and at the initial order prices. They cannot or will not understand why the exchange cannot be made. They will not accept goods ordered and made for them unless their sales of clothing call for the full quantity. In case one or more pieces of a style ordered is above their requirements they either refuse to accept the goods or reject them for an imaginary defect. In fact they think manufacturers should keep all goods made for them, which they do not require for actual sales, and that they should make one or two pieces of a style that they need above the quantities for which they placed orders.



NO. 2. A WORSTED SUITING NO. 4. CARDED WOOLEN SUITING NO. 5. WOOL CLOAKING

The questions now are: How many goods will be left in stock and how many yarns not used this season will be left in the manufacturers' hands, also how will the reduced demand for goods, yarns and wool affect the prices of such commodities?

Reports from the wholesale clothing trade are not of an encouraging nature. The medium and smaller clothiers are considerably behind in their sales and while the leading dealers are getting a large percentage of the sales they are not doing as much business as usual. It appears that the clothing business is gradually being absorbed by the large firms. The latter are enabled to keep down the cost of manufacturing by their large operations and also to make advantageous purchases of all kinds. This is giving them the advantage over the smaller firms and is

gradually increasing their already large sales.

Certain clothing manufacturers have complained that foreign made fabrics, especially serges, have been weighted with sizing or some other substance and that such fabrics have lost an ounce or more while undergoing the process of sponging. They have also complained of the colors not holding as well as those of domestic made goods. These defects are certainly good arguments in favor of goods made in this country of which no such complaints have been made.

Foreign manufacturers are bending their best efforts to capture a larger percentage of the woolen business. With their experience during the present season they undoubtedly will be far better equipped to secure an increased business. The business they did here this season was quite large in the aggregate, but it was widely distributed among many mills. Many lines were put on the market here for which no orders whatever were taken.

The writer has already seen some very creditable foreign fabrics and styles made for the spring season of 1915. They are being shown in a quiet way and sample orders are already being placed for them. These samples show great improvement over the products of the same mills for the present season and will surely command a largely increased business.

Piracy of fabrics and styles has been carried to an unusual extent this season. Many failures having been scored, it became necessary for such mills to appropriate the brain work of other and more successful manufacturers. The writer in going the rounds of the market learned of certain free selling fabrics and styles which were copied in much cheaper fabrics which met with liberal sales, after which the original manufacturers copied their own goods at lower prices than the original copies were sold for. This has been done in several instances and it has created quite an interesting state of affairs for some people, but not so interesting for others.

In fancy goods knotted yarn effects are in evidence both in women's and men's wear, both for suits and coatings, and they certainly produce very desirable effects in garments. They are something new and striking which is what the consumers are demanding at the present time.

The crest of the Balmacaan wave has passed. It is time that it should pass as 25 and 30 cent goods are being used in making such garments. The newest craze is Roman stripes for women's wear and the demand for them has become quite large.

There is a great deal of complaint among selling agents and salesmen about the unsatisfactory state of the woolen business during this season. Some have said that it is the most unsatisfactory since 1894 when the Wilson tariff went into effect. Selling agents admit that comparatively few mills have met with success in selling their full production up to the present time. There is still a chance for a good duplicate orders business on such fabrics as have been well distributed and which have already been favored with some repeat orders. Unless some duplicate business has already been received on certain fabrics, there is but little chance of much business for them during the season.

Selling agents and mill men are devoting their time to getting out fabrics, colors and styles for the spring season of 1915. Sample blankets, selling ends and new bound samples are in evidence in many places and they are planning to get out samples in time for an early spring. Each one is putting forward his best efforts to getting out the best sellers for the season. Their success will depend to a great extent on what ability and support they have at their respective mills.

Low priced three quarter goods are now being shown, and the better goods will be shown in July, with the finest goods probably to be opened the last of July or in early August. Goods usually are shown quietly before the general opening and this coming season is likely to be no exception to the rule. There are certain buyers to whom sample blankets are submitted when first made and orders are placed from these. It is more than probable that such orders have already been placed for fair quantities of goods.

Staple goods such as serges are undoubtedly being shown more or less both by foreign and domestic manufacturers. They no

doubt will bring good results as usual to those showing good manufacturing at satisfactory prices.

A number of samples of imported fabrics accompanied this report. Three of them are shown in the illustration. An analysis of five of these fabrics resulted as follows:

No. 2. Worsted suiting, 12 ozs., 56 in., $1.75 net. Warp, 78 ends, 2/23s worsted. Filling, 78 picks, 2/25s worsted. Actual weight, 10.2 ozs.

No. 3. Worsted suiting, 10 1/2 ozs., 56 in., $1.37 1/2 net. Warp, 80 ends, 2/25s worsted. Filling, 76 picks, 2/33s worsted. Actual weight, 10.2 ozs.

No. 4. Carded woolen suiting, 15 ozs., 54 to 55 in., 52 1/2 cents net. Warp, 32 ends, 14s cotton. Filling, 28 picks, 1 run. Actual weight, 14 ozs.

No. 5. Wool cloaking, 20 1/2 ozs., 54 in., $1.20. Warp, 4 ends 10s cotton. Filling, 21 picks, 1 run. Actual weight, 21 ozs.

No. 6. Wool suiting, 13 ozs., 54 in., 45 cents net. Warp, 43 ends, 17s cotton. Filling, 31 picks, 1 run. Actual weight, 13 1/2 ozs.

A Wool Buyer in the South West

Written for the Textile World Record

The year 1913 will always be memorable to the wool trade and its affiliated industries, because of the hopes and fears as to the effect of the new tariff rates and the calculations on the various rates as they were being juggled in Congress before the deluge. The interval allowed by the new law for adjustment on the various schedules was well employed by the trade in getting informed on all classes of foreign wools and wastes. Many European houses had their representatives in our markets looking over the situation. The large number of them about the trade led some of us to expect grass to grow plentifully on Summer St. Many were the predictions as to the low range of values likely to rule on domestic wools when the duty came off, and the difficulty the dealers would have in selling wools in competition with the foreign dealers. During the summer and fall our mills were operating a large percentage of their machinery and domestic wools were being steadily consumed. Buying, except in a few instances, was for actual needs only, but the total was large. The prices, although not exactly satisfactory as to profits, did not show any great losses, and by the month of November stocks were well reduced and dealers began to breathe easier when they realized a large portion of their holdings had been marketed without tremendous losses. In December there came a change of sentiment based on the goods market, and prices began to harden.

The annual report of wool on hand Jan. 1, 1914, showed a slight increase over the previous year. During this month the activity of sales increased until stocks in dealers' hands were down to the vanishing point and had moved at advanced prices. The season ended with slight if any losses for the year's business. This was an agreeable surprise as many expected to close their books for the season on the wrong side. The shortage of wool stocks at this time led the trade to turn early to the 1914 clip for relief, and contracting on the sheep's back was opened up about the middle of January in Utah at prices ranging from 11 cents in the heavy shrinking sections to 16 1/2 cents in the light shrinking sections. Before the middle of February ten million pounds had been contracted for, leaving only the doubtful sections. By the time shearing had started all the wools in that State had been disposed of to the dealers.

Contracting Nevada also began early and nearly 50 per cent. of the clip of this State was taken at 12 to 13 1/2 cents, it having been seen by the principal operators that the wools would likely be in better condition than for years. The early shearing in and around Phoenix, Arizona, in February was not neglected and an unusual large number of buyers were turned loose in this place to buy the wools. Let no intending wool buyer think that much buying can be done at this place under present conditions.

The word "buyer" has no pleasant sound to the Arizona sheep man. To his mind it means robber or bunko artist, and they receive but little consideration. Although they may be treated with the same courtesy and allowed to examine and perhaps sample an occasional clip that is being shorn, or to hold a spirited sealed bid sale with them-

selves just to test their nerve, the result is the same, nothing doing. After a few weeks of such work, spending money for automobiles for fruitless rides over the desert and hoping against hope, the buyers fade toward the other sections minus their expenses.

The early Arizona wools are consigned to Boston and only one house gets more than a "look in." This state of affairs was no doubt brought about by the boys of some

Watchful waiting at Beardsley, Arizona. Just arrived or ready to start. Every herder has his "burro" to carry water and the camp outfit

remote period overplaying their hands and working buying combinations, so that there was what might be called restraint of trade. In any event the buying business is not good at Phoenix, even for the pampered buyers of the trade. Manufacturers' agents were turned down without a tremor and not enough interest was shown in their presence to look them up or class them other than with the common herd bent on robbing the sheep man of his just deserts.

This consignment business is no doubt sufficiently attractive as a banking proposition to make it worth while for the bank presidents to take an active part by being on the ground to insure things going right, and it is said even to extending their efforts to other States and sections. The early sales in Boston of light shrinking clips at a high grease price is always industriously circulated among the growers who shear later so that their ideas are keyed up to a point where consignment is the only thing possible. These wools, being the first of the 1914 clip to arrive East, are sold quickly and easily on a bear market at 21 to 22 cents, costing clean about 55 cents for a fine French combing wool.

Other new wools that buyers seek for early requirements are the "fed" wools. This is wool from sheep that have been fed or fattened for market and are found during March and April in the Middle West. The starting points for the buyer are the stock yards of Kansas City, Omaha, Chicago and St. Paul. Ranchers of the far West ship train loads to one of these markets. If the sheep on their arrival are fat enough they are offered for sale at once, but if not, are fed on grain for several weeks before being offered. Sheep or lambs that are rejected by the buyers for the packers as not being heavy enough for slaughter are often sold to the speculative farmers who may have their barns full of grain, alfalfa meal, cotton seed meal, or corn, which is fed to the sheep or lambs until they have taken on sufficient weight to be marketable. About three weeks before they are ready for market the sheep are shorn as they take on weight faster with the wool off. The size of the farm flocks varies with the financial capacity of the farmer, some of the largest feeding five or six thousand head. Like every other business it has its ups and downs and the amount of wool shorn depends largely on the packers who seem to have it in their power to regulate prices for the sheep so that sometimes it does not pay the feeders to shear. The wool in this case comes on to the market in the form of pulled wool.

At the sheep market in the different localities it is an interesting sight to watch the sheep salesmen showing off the size and quality of the sheep by catching them by the hind leg and throwing them to the ground, after which the buyer makes his examination as to the condition and probable weight. The sheep are sold by weight. After a sale is made they are driven or led to the platform scales and weighed. Several goats are kept

at the pens for use as leaders and are very proficient at this line of work. One old chap was most friendly and almost climbed the corral fence in his anxious efforts to secure a chew of tobacco that was offered him. When a car is to be loaded with sheep, the

A CACTUS IN ARIZONA

goat leader is driven into the band and immediately takes his position in the direction it is desired to move, the sheep following blindly whether it is on board a car or to the shambles.

The fed wools this season opened at about 18 cents for the finer wools and 20 cents for medium grades, but the pace soon warmed up under keen competition and advanced two to three cents a pound. As the season neared its end the packers seemed to arrange prices so that it would not pay owners to shear and numbers who might have shorn sold their sheep with the wool on.

The country banks sometimes have amusing and complicated transactions with the small farmers. One man wanted to borrow a few dollars and put up two cows as security. The papers were passed and the mortgage registered in due form. Several days later the man called and wanted the mortgage changed as he had swapped one of the cows for a heifer. Later he called again with the request that the mortgage be again changed as he had swapped the other cow for a mule. When note came due the bank found their security had changed to several sows.

Contracting opened in Montana at 16 1/2 to 17 cents and it is estimated that about 60 per cent. of this State went early at from these figures up to 19 cents. At the latter figure there came a breathing spell, but whenever a clip could be contracted for it was done. As shearing approaches it is estimated that about 70 per cent. of the wools have been sold. The condition is expected to be a little heavier than last year as there has been an open winter so that the wools have more earth shrink than last season.

Later reports are to the effect that the sealed bid poles which usually take place in Idaho and Oregon are likely to be abandoned owing to the small supply of unsold wool open for offers.

It is difficult to remember when in years past the Boston wool lofts have been so bare of domestic wool at this time of the year. The Utah, Colorado, Nevada and Arizona wools have moved into the manufacturers' hands about as fast as they arrive, there seeming to be a vast vacuum for domestic wools to fill. Until this is done there is not likely to be an accumulation. The wools move at substantial profits, which must look good to the men who are taking them. The wool is easy to obtain as the mills do not make much of any effort to break asking prices, seeming to feel they must have wool at any price. This state of affairs is helped along by a continually rising foreign market, there being a very strong demand for wools in Europe. Mills appear to be well employed and evidently have no stocks of domestic wool to draw from. This makes the harvest for the dealers who went in early and contracted. It seems safe to state that never in the history of the trade has so large a percentage of our domestic clip been contracted for before shearing.

The National Association of Hosiery and Underwear Manufacturers

The tenth annual meeting of this organization and the exhibition in conjunction therewith, which were held in Philadelphia the week of May 11th to 15th inclusive, made that city the Mecca for hosiery and underwear manufacturers from all parts of the United States.

CHARLES E. LEIPPE, RE-ELECTED PRESIDENT OF THE ASSOCIATION

The attendance was probably the largest that this association has ever had, over 300 members and guests having registered. Unusual interest prevailed during the different sessions.

The regular sessions of the association were held on the mornings of Tuesday, Wednesday and Thursday and good judgment was shown in leaving the afternoons open so that the manufacturers were allowed ample time to attend the exhibition and investigate the many new machines and appliances that were shown.

The social feature of the week was the complimentary smoker and entertainment given to the members and exhibitors of the association at the Scottish Rite Hall, Broad St., where a very pleasant evening was enjoyed. Lavish provision was made for the

entertainment of the guests. The program consisted of a substantial repast and an amusing entertainment by vaudeville artists.

The first business meeting of the organization was called to order with President Leippe in the chair, who introduced Mayor Blankenburg of Philadelphia.

MAYOR'S ADDRESS

As chief magistrate of the largest textile city in the world it gives me especial pleasure to welcome the members of the National Association of Hosiery and Underwear Manufacturers to Philadelphia.

You stand for one great branch or division of employment which, in this city, furnishes work to one-third of our whole great army of skilled labor. Your visit comes at an opportune moment, because a perceptible pause in production is forcing upon all of us a serious and thorough survey of our business, our political and our social life. For a number of years even the most enthusiastic believers in our form of government have thought an improvement necessary in some features of our public life, and have been earnestly and honestly working to arouse public sentiment in this direction. You men of the business world have also been aware of the fact that certain abuses have developed which require prompt and skilful treatment if the body commercial is not to suffer serious injury. We must never forget that ours is not a dollar country, as is too often charged, and that only by devotion to the public good and a high civic spirit can we maintain the glorious position we now occupy among the nations of the world.

Recognizing that condition, appreciating the temper of the public mind, I would add to my words of welcome the suggestion that while you remain in this great city of homes you devote a portion of your time to the study of some prevalent feature in our life which, I believe, are worthy of consideration and emulation by the rest of the republic. I would suggest a study of a peculiar feature in Philadelphia life—namely, the wide range of our industries. We cover more than 200 of the 264 lines of occupation recorded by the United States Census. This wide range of occupation carries us into all parts of the world as buyers of raw material and into all parts of the world as sellers of manufactured goods. As a consequence, we have built up a foreign connection which frequently has carried the city through periods of dull times in local trade, because hard times seldom prevail over all the world at the same moment.

Let me say again, you are welcome, doubly welcome, to the mother city of the republic, to the greatest textile city in the world. And, gentlemen, I extend to you the freedom of the city. May your stay be pleasant and profitable, and may you carry with you a kind remembrance of the hearty welcome Philadelphia extends to you.

Congressman J. Hampton Moore then addressed the convention, condemning in strong terms the burden placed on business by unnecessarily restrictive legislation. He attacked the investigation into the cost of production of hosiery and underwear which is now being conducted by the Department of Commerce.

Edward J. Cattle enlivened the meeting with an entertaining and optimistic speech, after which President Leippe delivered his annual address:

PRESIDENT'S ANNUAL ADDRESS

As president of this association, it affords me much unalloyed pleasure to extend to you our greetings on this, the tenth anniversary of our association. The officers of this association pride themselves (rightly, too) upon the high position our association has taken among the associations formed for the betterment of the various crafts they represent. I know I voice the united sentiments of our officers when I say that a very great measure of this success is due to the untiring energy of our secretary and the hearty cooperation of our members.

The knitting industry seems to me at this time to be in a state of evolution, and the manufacturer hardly knows from day to day where he stands. I hardly know of an industry that has undergone the changes in a few years that the fine seamless line of hosiery has. It is but a few years that the finest seamless hose was a 204 needle, that jumped to 240 needles. The ladies' hose had a two-inch welt, and a single 60 heel and toe splicer. The next evolution was a reinforced garter top, the next a four-ply heel and toe, the next a six-inch welt, the next a high spliced heel and double sole, the next an entire silk hose, the next silk boot, the next genuine silk plaited, next a wood fiber silk, next a wood fiber silk plaited, and next a genuine silk and wood fiber mixed. What next? Heaven only knows. A great many manufacturers have spent about all their earnings in buying new machinery so as to keep in the procession, and have introduced systems to lessen the waste, and bring their business up to a high state of efficiency, so as to permit them, if possible, to make only a fair profit upon the capital invested in their business. There has been no time in the history of the hosiery business when the changes were so rapid, and machinery became antiquated so quickly. Everyone of the many changes enumerated above have increased the value of the hosiery produced.

I say, and without fear of contradiction, that the hosiery made in America, by Americans, is better value for the money than the hosiery made in any other part of the world, and more than 95 per cent. of the hosiery made in the United States is consumed here. Up to less than a year ago the business of all hosiery manufacturers was all that could be wished for. Every mill was running full tilt, not an idle machine anywhere. The employes working the full limit of time, at the highest wages paid in the world for hosiery workers, employes earning from $8 to $40 per week, with an average in many mills of $12 to $18 for girls, and from $16 to $40 for men. These were American wages paid to American working peo-

ple, who live like Americans, and who have more of the real comforts of life than the working people of any other part of the world. But, within one year or a little more, there came into power a new party in our national Government, whose policies were not the policies of the old party. The old party's policy was the American market for the Americans. There is no other market in the world for our own products so good as our own market. Why destroy that which you have and which is your heritage, and hand it over to aliens, who have no interest whatever in us, except what they can get out of us, and give us as little as possible in return.

I almost imagine I can hear someone say—Mr. President, you are a pessimist. Gentlemen, this is neither time for pessimism nor optimism, this is the time to tell the truth. We have real conditions confronting us, and not imaginary ones. The purchasing power of the American wage-earner has not increased one tittle since the present tariff has gone into effect, but on the other hand with thousands of American employes entirely out of work, and others on short time, the purchasing power has decreased considerably more than the majority of pessimists would be willing to admit. At the rate that foreign hosiery and other knit goods have been dumped on the American market within the last three months, it will be only a matter of a short while before our mills will be half or more than half idle. Indeed, some of our mills are running as little as three days a week, others four and five, and I am sure very few, if any, are running full time. Who is benefited by this condition—it is the foreign manufacturer and the importer. What interest do American manufacturers and American employes have in the goods made abroad? None. Every pair of stockings imported means just that number less for American employes to make, just that much less bread and butter for you, me and our employes.

Abraham Lincoln has so ably said, "I do not know much about the tariff, but I do know when we buy goods abroad we get the goods and they get our money, but when we buy our goods at home we get the goods and the money also." Now if the American consumer was paying less for the imported hosiery today than he paid under the higher tariff, we could not complain justly, because the great American public would be benefited by the reduction in the tariff, but there has been no reduction to the consumer. To sum it up, we all get something—the American manufacturer loses the business, the American working man his means of earning a livelihood, the American Government the tariff or revenue, and the foreign manufacturer is happy.

In the month of February, 1914, the importation of hosiery was 40 1/2 per cent. greater than in 1913. All other knit goods imports outside of hosiery were 67.7 per cent. greater than in 1913. In the month of March, 1914, the importation of hosiery was 72 4/5 per cent. greater than in 1913, and all other knit goods 71.9 per cent. greater than in 1913. Every month shows an increase, and this is just the beginning. Someone may say that hosiery is the only thing being hit—not so. Let us compare some of the other textiles. Cotton cloth increased in February, 1914, from $727,121 to $1,454,439, or 100 per cent. In March, from $721,902 to $1,402,071, or 94 per cent.; woolen dress goods in February from $262,938 to $782,121, or 197 per cent.; March from $225,973 to $740,928, or 227 per cent.; woolen cloths under free wool, February, 1913, $464,742 to $1,564,197 in 1914, or 236 per cent.; March, 1913, $328,974, to $1,396,910 in 1914, or 324 per cent. increase.

This is not hearsay; these are Government statistics. Now, gentlemen, these are conditions. I have given them to you quite briefly. You might ask me what is the remedy. I would say this: Where is the man of large or small business interests who would hand over his business to an inexperienced ward politician, who knows nothing more or cares less about your business interests than the man in the moon. It is the business of every business man and every manufacturer to get into politics, nominate and elect such men as will look after your interests and the interests of your employes. There is no division between the manufacturer and his employes—they are paramount, the one cannot succeed without the other. If I have nothing to do, my employes have nothing to do either.

We have a few more days before the primary election here in Pennsylvania. When you get home, take off your coats, make it your business to see that only such men are nominated for office that will do your bidding. The business interests have stood aloof too long. We sowed to the wind and are now reaping the whirlwind. Gentlemen, equip yourselves like men. Where your present representatives are truly your representatives, tell them so, and help them to a renomination and election, but where they have misrepresented you and your interests, make it your business to see that they stay at home.

Gentlemen, I need not tell you who looked after your interests in the United States Senate for nearly twenty years, you know as well as I can tell you. Senator Penrose, I say, without fear of truthful contradiction, is the best business Senator Pennsylvania has ever had, and we should say as the master of old, "Well done, good and faithful servant: thou hast been faithful over a few things, I will make thee ruler over many things."

At the second session on Wednesday, John P. Wood, of Philadelphia, addressed the meeting, outlining the work of the Pennsylvania Manufacturers Association to secure sane legislation in Pennsylvania. Arthur T. Bradlee followed with a talk on the subject of conditioning yarn and cloth. He spoke of the tests made at the Arlington Mills, Lawrence, Mass., to determine the moisture regain for wool and the subsequent adoption of an allowance of 15 per cent. He referred to the efforts made by the cotton trade to establish a standard sales note and the work of a committee to secure the adoption of a uniform method of testing. Mr. Bradlee

spoke of the large number of tests of textile materials made by English conditioning houses and the adoption of a sales note at Manchester and Bradford.

The next speaker was Calvin M. Smyth, president of the National Wholesale Dry Goods Association, who spoke on the economic advantage of the jobber in the scheme of dry goods distribution. He was followed by T. J. Fernley, secretary of the association. He asked that the manufacturers cooperate with the distributors of goods and pointed out that the distributor was performing a necessary function in carrying on business economically. Mr. Fernley pointed out that the cost of distributing the manufacturers' products was from 13 to 15 per cent. and that the average net return to the distributor did not exceed 2 per cent. The turn over was not made more than four times a year, leaving the net return one-half of one per cent.

The election of officers was the next business on the program and resulted as follows:

President, Charles E. Leippe, Reading Knitting Mills, Reading, Pa.; first vice-president, Edward Blood, Sr., John Blood & Bro., Philadelphia; second vice-president, T. H. Johnston, Knoxville Knitting Mills Co., Knoxville, Tenn.; secretary, C. B. Carter, Philadelphia, and treasurer, Robert C. Blood, John Blood & Bro., Philadelphia. The following directors were elected to succeed themselves: W. Park Moore, Brown Knitting Co., Philadelphia; S. D. Bausher, Gotham Underwear Mills and Bleach Works, Hamburg, Pa., and B. L. Galbraith, Bay City, Mich.

Secretary Carter presented a report of the Board of Directors which is as follows:

DIRECTORS' REPORT

Your Board of Directors, in connection with the officers and advisory board, have held frequent meetings during the past year and have in every way endeavored to advance not only the best interests of the association in its further growth and development, but also to plan for the protection of the individual members' best interests. Inasmuch as both the members and non-members of the country have been kept fully advised regarding the principal lines of work that have been transacted, we deem it unnecessary to go into details regarding the year's work, but will briefly review some of the most important questions that have been taken up.

The matter of educational work along the lines of cost methods has been a question of vital interest to the association and to individual members ever since the association was organized, and we presume that this topic will always remain a vital issue in our work. Repeated efforts have been made to formulate plans that would enable knitting manufacturers to adopt practical methods for the accurate costing of their goods, but as yet no generally accepted system has been agreed upon. Your Board of Directors have had frequent conferences during the year with cost and efficiency experts, who have made investigations among knitting manufacturers with the idea of developing plans for assisting the manufacturers on this vital question. We hope some tangible plan may be adopted that will prove effective in the object sought.

The plans that were tentatively adopted at our 1913 convention upon the subject of special packing have been more fully developed since that time, with the result that it now seems probable that by September 1 of this year, or possibly earlier, our association will be in position to begin filling orders for all forms of bands and labels and such other special packing as the trade demands. It must be borne in mind, however, that the association is not going into the printing business, but will assemble the requirements of the jobbers and have same printed in large quantities by the band and label printers at competitive prices, the first consideration, of course, to be on the quality of work required. There is no question but that this department of our work will prove not only a great saving in expense to knitting manufacturers, but will also lessen the unwarranted delays that are now an everyday occurrence in securing prompt deliveries on special packing.

Another abuse that is gradually developing in the line of special packing is that of gold transfers, and we deem it expedient that manufacturers should adopt some uniform practice in handling this proposition.

The same may also be said of the rider ticket question, which so far is affecting the hosiery manufacturers more extensively than other lines of knitted goods. We respectfully invite the attention of our members to this question, with a view to adopting some uniform practice in handling same.

The rapid development of standardization of goods is causing the knitting manufacturers more actively to adopt plans for establishing and maintaining their identity with the trade, which can only be done through the adoption of trade-mark methods in distributing their products. This question has been very fully discussed at several meetings of our Board of Directors. We hope this convention may see its way clear to take some action that will facilitate the better protection of their interests.

Your attention has been called to the investigations that are being made by the Department of Commerce at Washington upon the subject of manufacturers' costs and conditions, and we wish to present for your consideration the action of a recent conference held in Washington by a number of our members on this subject.

Following are the resolutions adopted:

Resolved, By the National Association of Hosiery and Underwear Manufacturers that the proposition for the handling of the trade-mark business of the members of this association be handled

through one channel for the benefit of all members concerned; and be it further

Resolved, That the Trade Mark Title Co., of New York, Baltimore, Washington and Fort Wayne, be instructed by the secretary of the National Association of Hosiery and Underwear Manufacturers that the proposition as presented to said association be accepted.

Whereas, We have listened to a very able address by J. P. Wood on standardization of safeguards of machinery, etc.; therefore be it

Resolved, That the president appoint a committee of three members of this association to work in conjunction with a similar committee of the Pennsylvania Manufacturers Association to devise and recommend such safeguards to the members of this association that will lessen accidents and preserve human life.

Whereas, The investigations that have been authorized by Congress and which are being made under the direction of the Department of Commerce at Washington as to the cost of manufacture in connection with present business conditions, as the basis for determining the defects of the Underwood-Simmons Tariff bill in its relation to manufacturing interests, would not at this time be a true reflection of the actual results of the new tariff bill; therefore be it

Resolved, That we recommend to the Department of Commerce that these investigations be postponed until at least a year after the Underwood-Simmons bill became a law, for the reason that practically all manufacturers are still operating on orders taken prior to the passage of the new bill, hence the adverse effects cannot be felt until old orders have been exhausted.

The report of the Arbitration Committee was as follows:

REPORT OF ARBITRATION COMMITTEE

In preparing this little handbook as a guide to arbitration the committee has in mind the elimination of unnecessary formality and "red tape," which on the face of it is one of the principal objections to legal proceedings.

Such brief rules and regulations as are herein laid down may for the most part be regarded as suggestive and tentative. They are designed to simplify proceedings rather than to impose restrictions, and enable arbitrators to satisfy themselves before making awards that they have secured all available evidence and otherwise conducted their proceedings in conformity with the demands of equity.

Arbitration tribunals, composed of business men, are not competent to pass upon disputes where the litigants demand settlement upon a legal basis only. Their proper jurisdiction is limited to cases in which both parties seek settlement upon a basis of equity rather than upon a basis of law, and prefer arbitration to legal proceedings as a means to that end.

Independent of the fact that the very purpose of arbitration is to avoid the necessity for appealing to the courts it seems doubtful if the cause of arbitration can be promoted by the enactment of law.

In some States (notably New York) laws have been passed ostensibly for the purpose of encouraging the practice of arbitration and which are popularly supposed to invest arbitration findings with the force of law court decisions. At first glance this appears to be a distinct advantage, but when we take into consideration the fact that in order to secure this advantage arbitration proceedings must be conducted in conformity with code provisions prescribed by the law, and that the various States do not have uniform laws, its merits are not so apparent.

On the contrary, it will be seen to complicate the work of arbitrators by compelling the observance of formalities, and militate against the adoption by trade organization throughout the country of simple and uniform methods of conducting arbitration proceedings.

Moreover a careful reading of the law of arbitration of the State of New York fails to disclose that it really does render the acceptance of arbitration findings more obligatory, even when the proceedings are conducted in conformity with it. On the contrary, it provides that arbitration findings must be validated by orders of court before they become legal obligations.

It paves the way for review by the courts of both arbitration proceedings and arbitration findings. It provides that motion to vacate an award may be made by either party to the submission and makes it mandatory upon the court to issue an order to vacate in certain specified cases; as for instance, where the arbitrators had "exceeded their power" or shown "evident partiality" or "any other misbehavior by which the rights of any party had been prejudiced." How could a court pass upon such averments without investigating both the arbitration proceedings and the merits of the dispute?

The net result of the law is to render arbitration awards binding and final only when both parties to the submission choose to accept them. When we take into consideration also the fact that the presence of this law on the statute books strips an agreement to arbitrate and abide by the results of its character as a contract which might be sued out on its own merits, we feel tempted to ask if our New York friends have not been consulting their lawyers as to the best way to dispense with their services.

Undoubtedly, the chief obstacles to the successful practice of arbitration heretofore encountered have been the difficulty of securing satisfactory arbitrators and the dissatisfaction with awards which may be fairly charged to the generally practiced method of selecting them.

The practice has been for each of the parties to a dispute to select one arbitrator and the two so selected a third, but there is no good reason why the parties to a dispute should choose the arbitrators and every reason why they should not. Why should they desire to do so except in anticipation of favors to come? It is quite certain that if they carried their troubles to court they would not be permitted to select the trial judges; and that for good and sufficient reasons which are just as applicable to the selection of arbitrators as to the selection of judges of the court.

The competence of arbitrators is dependent not only upon their integrity, but also upon their special knowledge and training. A dispute between a manufacturer and a merchant might very well be decided by a court composed of manufacturers and merchants.

It is obvious, therefore, that if the various trade organizations will establish arbitration bureaus and cooperate with each other is providing arbitrators, they will experience no difficulty in making up competent unbiased tribunals and the business man who would be unwilling to submit his case to a tribunal as provided is not looking for a square deal, but for a fight.

If arbitration is to supersede litigation to any appreciable extent in the business world it must be based upon whatever confidence the business world has in its own integrity. That a sufficient basis of confidence exists will not be doubted save by the envious and the pessimistic.

As already intimated, the rules and regulations appended hereto are by no means presented as being ideal and complete, but we hope they will serve as a practical working basis until they can be revised in the light of a more mature experience.

The officers, directors and advisory board of the National Association of Hosiery and Underwear Manufacturers shall constitute its bureau of arbitration. They shall have a chairman from their own number and the secretary of the association shall be the secretary of the bureau.

It shall be the duty of the chairman of the bureau to appoint all arbitrators, and in so doing he shall be careful to ascertain as far as practicable that neither close personal friendship nor animosity exists between any of his appointees on either of the parties to the dispute. He shall not be confined in selecting arbitrators to the membership of the bureau.

All submissions must be signed by both parties to the dispute and must stipulate that they agree to submit their differences to the Bureau of Arbitration of The Hosiery and Underwear Manufacturers Association for adjustment and that they will accept the findings of the bureau as final and binding and pay the costs incurred as the arbitrators may direct.

All findings and awards must be typewritten in triplicate, signed by the arbitrators individually and countersigned on behalf of the bureau by its chairman. One copy shall be forwarded to each of the disputants and one placed on file by the bureau.

Arbitrators shall serve without compensation, but shall be reimbursed for all necessary personal expenses incurred while attending to the tasks assigned them. (Note.—The committee recognizes that "the laborer is worthy of his hire" but hopes that those appointed to arbitrate will be willing to sacrifice their time and labor in the interests of progress, at least until the value of arbitration is more thoroughly demonstrated and the practice of it firmly established.)

At the time of submission each of the parties to the dispute shall pay to the bureau a submission fee of $20. No further charges shall be made excepting for the actual and necessary expenses incurred in properly conducting the arbitration proceedings. Such expenses shall be assessed against either or both of the disputants as the arbitrators may determine.

All cases should be heard and disposed of as speedily as thorough and careful consideration of them will permit. This will generally be to the satisfaction of all parties concerned and will help the cause of arbitration. Many cases may be satisfactorily adjudicated without the taking of personal (oral) testimony. When this is practicable it will be to the convenience of all parties concerned and will save time and money for the disputants, particularly when they reside at a distance from the offices of the association. In such cases the arbitrators should require each of the parties to submit a written statement of their case and claims, together with all documents relating thereto—correspondence, orders, invoices, etc.

When oral testimony is received it should be taken by a stenographer, transcribed and placed with the other documentary evidence for reference when the arbitrators are giving final consideration to the case.

Care should be taken that any averments by either of the parties and deemed by the arbitrators to affect the merits of the case, should be brought to the notice of the adverse party and an opportunity given to the latter to make reply thereto. This, of course, is simply stating one of the first principles of equity, and it is only noted here because first principles are sometimes lost sight of.

Make clear cut, positive and definite decisions, but be sure they are sufficiently comprehensive to cover all matters in dispute and make final disposition of them. Don't make a decision in the nature of a compromise for the sake of conciliation, but don't be afraid to make such a decision when the equities of the case demand it. In many cases, perhaps in a majority of cases, neither all the right nor all the wrong is on one side, and in such cases a just decision and award must necessarily be somewhat in the nature of a compromise. Remember that you are sitting as a court of equity, not as a court of law.

The following letter from Senator Penrose was read at the Thursday session:

SENATOR PENROSE'S LETTER

Since writing you I regret to find that my schedule of engagements will render it impossible for me to be present at the annual convention of the National Association of Hosiery and Underwear Manufacturers during the week beginning Monday, May 11.

After traveling a large part of Pennsylvania during the past few weeks, I find that industrial conditions are steadily growing worse as the result of the Underwood Tariff law. Evidently, no relief is in sight for the industries of the country until the Republican party can be restored to power and we can go back to the protective system under which the country reached such a height of prosperity. I am glad to be able to inform you and your associates that the tide is settling strongly in favor of the Republican party all over Pennsylvania and throughout the country

The people have come to the conclusion that the government is in the hands of men incompetent to run it and is under the control of a party whose policies are bound to lead to disaster.

I urge all the members of your association and all others engaged in industrial enterprises in the United States to put forth their best activities and energies in support of the tariff issue so that our country may be enabled to again start on a period of expansion and prosperity.

I send my best greeting to all.

Bois Penrose.

The following papers were also read at this meeting:

MR. TREGOE'S REMARKS

It is the distinguishing mark of present-day industrial production that while certain elements, as related to quality and style, are critically considered, yet one element (that is, the governing law of distribution) is usually not reckoned with. I am unable to tender one thought upon the features of your production and my presentation must be of that element that has the same ultimate effect upon the economy of your enterprises as air upon human life. This fundamental element which surrounds production as does atmosphere the earth, and holds it in an irresistible grasp, is purchasing power.

Business is a development of man's efforts to satisfy his needs, and there are three elements to business: The need, the goods that will satisfy, and, midway between these two, the ability to satisfy the need. The absence of either the first or last element affects unfavorably the continuity of the business transaction, but the absence of the second entirely destroys it.

If your production continues irrespective of the purchasing power, that is, the ability of the consumer to safely buy, what happens? The production must be marketed; the marketing of the production in the face of the diminished purchasing power means cheapened credit. Cheapened credit means bad debt waste, and bad debt waste means an ultimate tax upon every citizen of the nation.

As you have laboratories for physical tests, we wonder if a laboratory to test purchasing power might not prove economical and profitable to gauge production as there is a probable market for consumption, and to have production ebb and flow as the purchasing power ebbs and flows, and thus the two delicately balanced in perfect harmony and with the absence of strain and waste.

We can feel proud as a nation of our credit system, it has made us unique in the world's industrial history. The business men of no other nation repose as much confidence in one another as do those of our States. Credit is checked from seller to buyer when the two have never met and are situated miles distant from one another, and we have shown a remarkable power to develop all the credit that is needed to sustain safely our domestic commerce.

Notwithstanding the general appreciation of the commercial morality, yet in the aggregate our bad debt waste is seriously large each year, and we can assert without fear of contradiction that the avoidable bad debt waste approximates $200,000,000 per annum. Now, we calculate what the saving of this amount would mean to the producer and the consumer. It must ultimately be paid for, and no greater caution can be encouraged in the business economy than to recognize the enormity of this waste and bend efforts to its decrease and eventual elimination.

We are sure the presentation of these brief thoughts will inspire in you a deep regard and a profound respect for the purchasing power's domination of distribution and that the credit system should be defended against injury and abuse by the exercise of intelligent methods and high business ideals. We must recognize economy in distribution and credit from the relationship between distribution and credit, for whenever the credit system is under strain or breaks down and idleness follows, it is attended with loss of purchasing power, and the whole commercial commonwealth is shocked.

In addition to this economy in distribution, there must be the expression of commercial honor in production and distribution. There should never be the trading of principles for dollars, but a recognition that every act carries its eventual compensation, that honesty will be recompensed with honesty, and unfairness will be recompensed with reprobation and loss. There can be no higher expression of patriotism than standing unitedly for an honest commercial commonwealth. Putting into good products honest values and not misrepresenting them, distributing with a regard for the governing law of distribution and not encouraging sales to the injury of the buyer's financial or credit standing; recognizing the mutuality of interest and endeavoring to maintain a perfect poise and a proper balance between the ability of the consumer to satisfy his needs and provision for their satisfaction.

The National Association of Credit Men, which I have the honor to represent, is deeply concerned in preserving the credit system from unnecessary burdens in keeping its ebb and flow according to governing laws and to show business men that through its defense, and in expressing the highest ideals in commercial morality we shall become the world's model in honest and intelligent trading.

For other papers read at this meeting see page 171.

SAFETY FIRST

The "Safety First" campaign, inaugurated some time ago by the Goodyear Tire & Rubber Co. at Akron, is already productive of good results. Prizes were given men with good ideas for making danger points safe, and the number of accidents reduced. One of the picturesque features of Goodyear factory development is the Goodyear fire department, which responds to a perfect factory system of calls, with light, modern apparatus, and has doubtless saved the company serious fire losses on occasions.

The Philadelphia Knitting Machinery Exhibition.

The exhibition held in connection with the Convention of the National Association of Hosiery and Underwear Manufacturers, has become such a well established affair that early application for space is necessary to insure representation. Long before this exhibition opened last month every available foot was sold and many were disappointed in securing room. It is expected that next year's exhibition will be held elsewhere so that both convention and exhibition may have the needed room which growth of interest demands.

all the exhibits would far exceed the limits of this issue, but we will present and illustrate the principal features of each. The pictures give a good idea of its extent and general character. The photographers were obliged to work under great disadvantages and it was not always possible to get a location where the best view was to be had.

The exhibit of Scott & Williams, Inc., Boston, Mass., was the largest of its kind in the show, resembling a fully equipped knitting plant on a miniature scale with 16 hosiery knitting machines and three shirt machines all in operation and a staff of expert help to operate them. It attracted

Scott & Williams, Inc.

The experience of past years made the show go off smoothly. The decorations were most attractive and the flags and bunting, neat railings and adequate lighting gave a very attractive appearance to the hall. The attendance was fully up to that of past years and on some evenings the aisles were uncomfortably crowded. A number of novelties in the line of machinery were shown here for the first time. Manufacturers were present from all parts of the country and the exhibitors expressed themselves well satisfied with the results. To describe in detail

great attention from the manufacturers attending the exhibition. The exhibit consisted of novelties in the underwear lines, such as a dogless shirt machine, a spring needle shirt machine, and a 16 needle per inch shirt machine, for the underwear trade. For the hosiery trade the latest models in knitters were presented by them in the following machines: one automatically turning welts on ladies' hose and another making a half hose complete without the necessity of transferring rib tops, as well as machines for making ladies' hose with anti-run back courses to prevent the running of the stitches. These were in various models. The booth was usually filled with visitors who were busy making inquiries regarding the machines on exhibition and good orders were placed. The following representatives were present: Rob-

ert W. Scott and P. M .Reynolds, from the main office in Boston; H. Swinglehurst, representing the factory; F. W. Smith, manager of the Philadelphia office; J. D. Morley, manager of the company's office in Utica, N. Y., and the following salesmen: P. J. Smith and Wm. Swinglehurst, underwear machinery; Fred Richardson, Albert Page and Wm. Randolph, hosiery machinery.

The Hemphill Mfg. Co.

The Wildman Mfg. Co.

The Hemphill Mfg. Co., Clay St., Pawtucket, R. I., exhibited four of their well known "Banner" knitting machines, in operation during the whole week, showing all of their latest improvements, among which were a high splicing heel and double sole slacking device and single pick, enabling manufacturers to get 15 to 20 per cent. more speed in making the heel and toe. They were also kept busy explaining an automatic transferring device, which is simple and effective and does away with a large amount of hand work. They report 16,500 machines at present in operation, and if orders taken during the show are any sign, expect to make a large increase on this number before the 1915 show. The exhibit was in charge of John Lawson, manager of the Hemphill Co., assisted by a corps of demonstrators.

The Wildman Mfg. Co., Norristown, Pa., in a

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The Wildman Mfg. Co., Norristown, Pa., in a

large space, exhibited the following latch needle ribbed knitting machinery, all of which were the latest in their line and on exhibition for the first time. One machine consisted of a French welt knitter for cuffs and rib tops with clearing course, equipped with a new dogless attachment with stationary crossbar; also a body machine automatic striper; a new machine for making skirts and collaretts, 12 cut 18 inches in diameter; a regular Wildman body machine with a new dogless attachment in which the dial is held in position by the needles. Another interesting machine shown by the company was a necktie knitter with two feeds with an automatic striper to each feed and a jacquard pattern mechanism. Also a new revolving body machine, 14 cut 18 inches in diameter, 12 feeds, with a new style dogless attachment independent of the cam ring. The entire exhibit was operating, each machine working on various grades of fabrics. In addition to expert demonstrators operating the machines, the following members of the company and its sales department were in attendance: Mr. Wildman, president; Owen Ballard, purchasing agent; D. C. Bellows and Mr. Walkden, representing the sales department; Wm. Allerton and Mr. McGinigal, construction department; Ernest Tompkins, knitting expert and G. L. Ballard, designer.

The Universal Winding Co., of Boston, report that the increased interest in the use of artificial silk in the knit goods trade has caused them to give special attention to the handling of this material, to secure perfect delivery to knitting machines, and to avoid the straining and abraiding of this very peculiar fiber. It is probably more difficult to handle this product than any other material in the winding, and the machine exhibited gave evidence to the fact that the Universal Winding Company have succeeded in this as in other lines in reaching close to perfection in handling this material successfully. The No. 50 Coning Machine, which was shown, was a great convenience to exhibitors as it was kept in constant operation, rewinding yarns for exhibition purposes in the various booths. This exhibit was in charge of F. J. Quinn, the Philadelphia manager. Frederick H. Bishop, secretary of the company, was also in attendance.

The Franklin Process Co., Providence, R. I., through the courtesy of the Philadelphia Drying Machine Co., exhibited a small 6-pound sample dyeing machine and several packages of dyed yarns. These people are prepared to give a practical demonstration of their work, the process now being used in many of the large cotton and worsted mills in the country. Geo. C. Urquhart was on hand to look after the interest of the company at the exhibition.

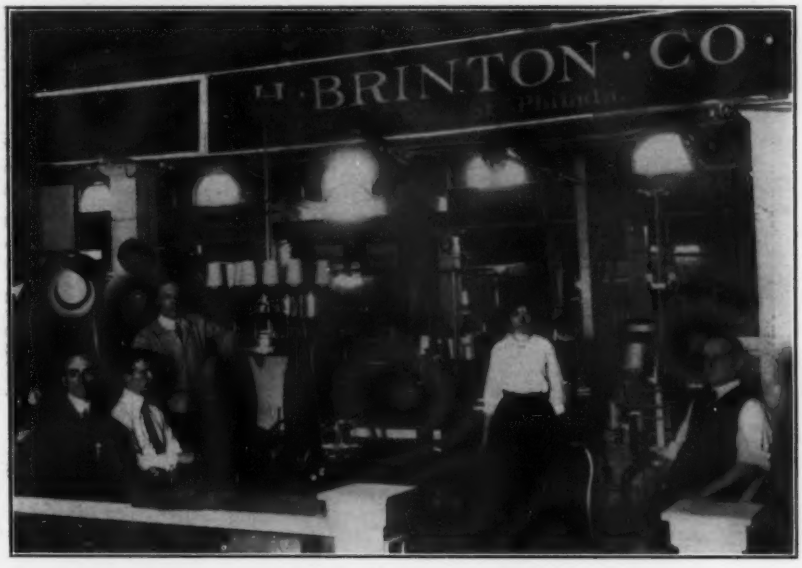
The Universal Winding Co.

The Paramount Metal Form Drying Co., Beaver Dam, Wis., while not showing forms in operation, occupied a space fitted up for the purpose of entertaining their friends and prospective customers interested in the subject of finishing and drying hosiery by their new and up to date methods. The members of the company attending the exhibition were Henry Pope, president; John C. McFetridge, secretary and treasurer and W. D. Butz.

U. S. Hoffman Co., Syracuse, N. Y., exhibited three steam presses, one for pressing hosiery with a capacity of 600 dozen ladies' hose, the operators working from both sides. This machine is entirely new, and the first time shown to trade. It was illustrated and described in the May issue of this magazine. The company is making a specialty of this hosiery press and has placed a number of them in hosiery mills, where they are giving entire satisfaction. The underwear press has already been shown, and the trade is fully acquainted with

its merits. The same can also be said of the sweater press, which is no longer a novelty, being in actual use in almost all large sweater mills in the country. The entire exhibit was a going one, and under the supervision of E. C. Moore, secretary and sales manager; L. J. Rieth, manager of S. E. Territory; G. R. Linsby and I. V. Howd, Syracuse, N. Y. C. H. Lewis, vice-president, paid a visit to the show one day.

The U. S. Hoffman Co.



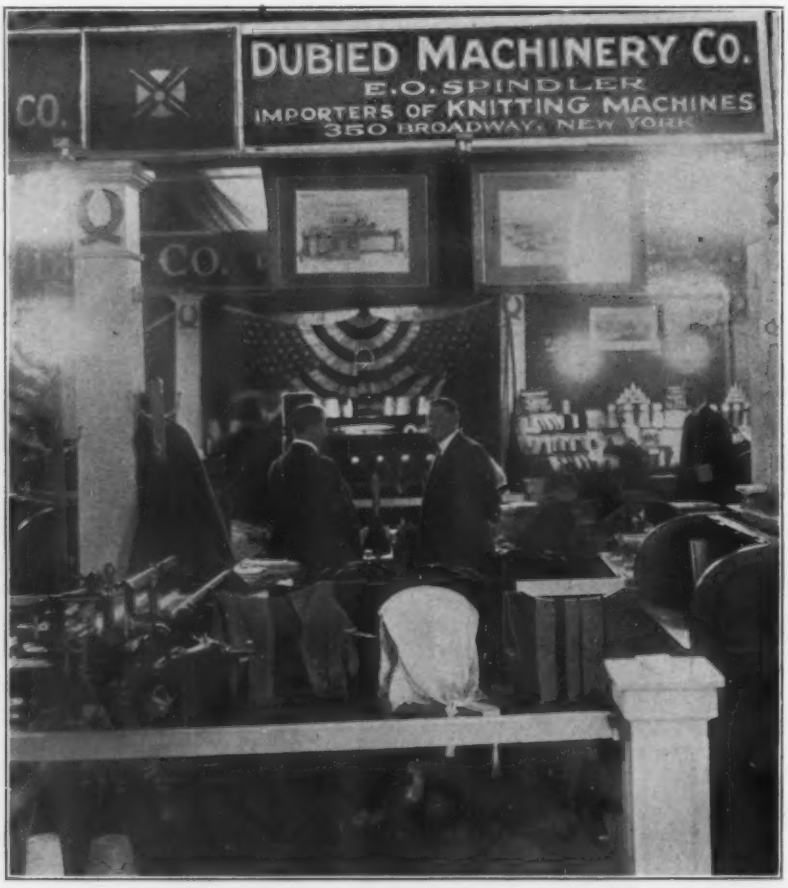
The H. Brinton Co.

H. Brinton Co., 213 Race St., Philadelphia, exhibited three of their knitting machines. One a 17 inch, 13 cut, 8 feed, plain body machine equipped with friction clutch drive; a 3 1/4 single feed selvage welt ribber, two speed attachment and their own two end stop motion, making 220 needle half hose tops; also a 3 3/4, 220 needle revolving cylinder hosiery knitter, which is their latest addition to the family of full automatic hosiery ma-

chines, with all the good features of existing machines and a number of new and novel points. H. S. Horrocks was in charge of the exhibit assisted by Leon Bean and Elmer U. Ames.

The Dubied Machinery Co., E. O. Spindler, 350 Broadway, New York, N. Y., agents for Edward Dubied & Co., Coubert, Switzerland, builders of flat knitting machines, had an exhibit of Links & Links "Pearl Stitch" machine of latest construction which attracted a great deal of interest from the manufacturers. They showed a considerable line of fancy patterns, which can be produced on this machine for infants' goods, shawls, etc., also complete garments of the latest European novelties in the sporting goods line, articles entirely new to the American market. Knit goods manufacturers of the better grade of goods were very much interested in these articles as well as the machines producing them. The complete line of samples made on their machines also created a very favorable impression. There were several practical demonstrators in attendance, the exhibit being in charge of E. O. Spindler.

The Philadelphia Drying Machinery Co., 6721 Germantown Ave., Philadelphia, showed their latest improved machinery in operation, for the dyeing, drying, singeing and finishing of hosiery. Many improvements have been made in these lines during the past year by the Philadelphia Drying Machinery Co. This company makes a specialty of equipments for the knit goods trade, and had practical men in attendance. It was well worth the time of the manufacturers who visited their exhibit. The dyeing of hosiery by means of the "Hurricane" circulating dyeing machines has been perfected to such a point that splendid results are secured in developed black, sulphur black and colors, either on silk, mercerized or cotton goods. Many of the large concerns in this country are using this machinery. Fireproof drying machines of steel construction are furnished in various standard sizes, the double-thick steel panels, with air-cell asbestos insolation, being a great step in advance of the old style wooden machines. The Philadelphia Drying Machinery Company as the inventors and original builders of the "Hurri-



E. O. Spindler's Exhibit

cane" automatic singeing machines (Hagar small type) for singeing hosiery have used every effort to perfect it, with the result that it is now a standard method of singeing, the work being done for practically one-half of the former expense. Hot and cold plate presses of the hydraulic and power screw types are shown. They are built to give various pressures, from 25 tons up to several hundred tons, depending upon the class of goods and finish desired. Heating and ventilating apparatus, together with fans of various sizes were shown in operation, together with a complete line of photographs illustrating representative installations made by the Philadelphia Drying Machinery Company. They also exhibited a new stocking turner, the machine being extremely rapid in its movements and easily and positively controlled by the operator. This machine is designed along original lines and as a result is a practically noiseless and extremely quick turner which interested many manufacturers who were looking for a labor saving device for turning hosiery. W. W. Sibson, treasurer, Howard Morsehead and LeRoy Garrettson were in attendance.

The Philadelphia Drying Machinery Co.

The Torsion Balance Company, 92 Reade St., New York, exhibited a line of textile scales which without calculation give the number of cotton, worsted and woolen yarn, also scales for giving the number of yards to the pound cotton cloth and for woolen cloth the actual weight in ounces and drammes for any width of goods. For general use their grain scale No. 5020, with a graduated beam from 1/10 of a grain to 10 grains has attracted considerable attention. This can be used for weighing out sample batches of dyes, and for ascertaining the exact weight of samples of both yarn and cloth. They also exhibited a line of Hosiery Scales which give the exact weight per pair of hose from an 1/8 of an ounce to 8 ounces, and indicates at the same time the weight per dozen pair. All torsion balances eliminate the use of knife edges with their consequent friction and wear, and having no moving parts, the mechanism being in one piece, fibers and dust of manufacturing plants do not clog the scales.

The General Electric Co., while not making a special exhibition of their products at the knit goods show, installed in the various operating exhibitions individual and group drive systems, consisting of motors from 1/4 h. p. for small individual drives, up to 10 h. p. for group drives for operating the heavier machines. The illumination of the hall was made by lamps from the National Lamp Works, of the General Electric Co. They were represented on the floor of the exhibition by C. A. Baer, J. T. Brady, Jr., C. K. West, C. H. Williams from the Philadelphia office and S. B. Paine and A. R. Jealous of the Boston office.

Wolstenholme & Clark, 24th and Allegheny Ave., Philadelphia, for the first time occupied space in the knit goods show, in which with the aid of both the members of the firm and their salesmen they demonstrated the value of their French spun knitting yarns.

The Grosser Knitting Machine Co., of New York, showed a similar exhibit to that displayed at the Boston Show. It consisted of an operating set of up-to-date power machines producing shaker coats. There was also displayed a full automatic double lock power machine for turning out ribbed garments as fast, it was stated, as they

can be made by a circular machine but making them in any desired size, all worsted or with plaited or cotton back. It was most interesting to see the accurate changing of mechanical motions required to produce the various stitches and rack designs. The pearl stitch and link and links machine was exhibited as well as their widely known "Record" looper. Samples of a great variety of goods were exhibited, some of which were brought back by Mr. Nydegger from a recent trip abroad, showing what was done on the other side with the machines for which he is agent. Max Nydegger, Robert Winkler and A. F. Knele, with a staff of assistants were present during the week.

The Grosser Knitting Machine Co.

The Grand Rapids Textile Machinery Co., of Grand Rapids, Mich., exhibited five machines for folding and cutting cloth under the "Shields" method. At their first exhibit, four years ago, they showed one cloth folder, which met with instant success, and they were pressed by their customers to branch out and manufacture other machines, with the result that at this exhibition they showed a series of machines, which makes a complete system for handling the web from the machine to the cutting table. H. A. Shields, Len W. Feighner and E. A. Clements, Jr., were in attendance, and reported a successful week. Mr. Clements, Jr., was combining business with pleasure, as he was on his wedding tour.

The Southern Textile Machinery Co., of Paducah, Ky., exhibited the Wright looper, the machine shown in operation being a 20 point looper, equipped with a trimmer which this year is an improvement over the one shown by them in 1913. The company was represented by Mr. Flournay, the president and manager of the company, and W. P. Wright, the inventor of the machine.

The Merrow Machine Company, Hartford, Conn., exhibited their well known line of Overseam Sewing Machines and parts. So far as known, they still enjoy the distinction of being the only concern in the world that makes overseaming sewing machines their exclusive business. Their machines have a world-wide reputation and are now used on a great variety of fabrics, although originally on knit goods exclusively. Their style 35F machine was shown at the exhibition for the first time. This machine makes a shell or scallop more closely resembling handwork than any of their former efforts. The style 60JD machine is provided with differential feed and laterally adjustable cutters. This machine has not before been shown to the public, as they have not been able to turn them out fast enough to supply the demand. Makers of balbriggan underwear and certain grades of ribbed goods appreciate this clever device for moving the cutters when the machine is in operation. The 60S machine for hemming tops of stockings has been adopted as the standard by many large manufacturers. The 60UD machine is all right for closing toes of hosiery of a certain class. The machine does its

work perfectly. Edward H. Allen, of the Philadelphia Sales Department, was in charge of the exhibit and Mr. Merrow, of Hartford, was also present to welcome old and new friends.

Smith, Drum & Co., Coral and Cumberland Sts., Philadelphia, exhibited their singeing machine with automatic gas controller, a new type of rotary washing or dyeing machine, one of their improved

The Grand Rapids Tèxtile Machinery Co.

The Merrow Machine Co.

heavy screw presses, with electrically-welded plates for hot pressing, equipped with an indicator showing the amount of pressure put on the goods, thus insuring even finishing for the same class of goods. They also showed one of their latest silk dyeing machines, constructed almost entirely of special non-corrosive metal. One of their 6 by 6-inch air compressors with double cylinders, single acting, fitted with an automatic shifting device was also exhibited. A small machine for the purpose of cutting the floating threads in stockings clean within 1/8 of an inch is one of their latest devices for use in hosiery mills. "Bob" are required. Their three gauge, 64 inch single bed shaker body machine, adapted to make full fashion shaker coats with an adjustable bar to raise up as many needles wanted for each particular size garment. Also a 10 gauge, 26 inch fully automatic, making bathing suits, jerseys and fancy stitched knit goods. This machine is adapted to change from rib stitch to cardigan or vice versa, to change from 1/2 to full cardigan, and also to change the stitch cams tighter or looser, and automatically changing three yarn guides. It will also change automatically to tubular round for making tubular fabrics or jerseys, or putting in a

The Smith, Drum Co.

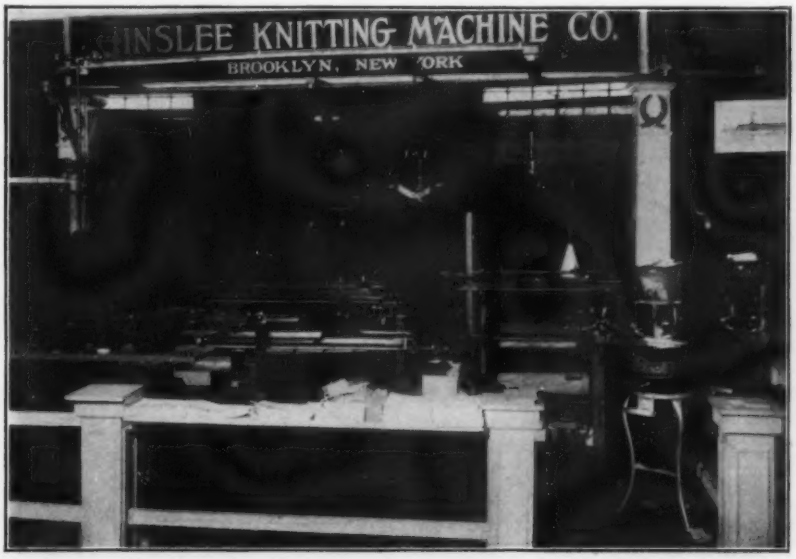
Smith, H. T. Drum and J. H. Skitt were in attendance to assist in receiving their many old friends as well as prospective customers.

The Ainslie Knitting Machine Co., Brooklyn, N. Y., exhibited several of their well known knitting machines, among which was a 7 gauge, 24 inch, with double lock system fully automatic, so as to make transparent patterns or cotton plating, adapted to make striped goods and all fancy racked patterns, with the latest Ainslie short chain attachment whereby three feet of chain, costing 45 cents, will produce any desired pattern and in any length. The production of this machine is claimed to equal any circular machine when there are only two feeds, namely when racked patterns dividing thread, together with automatic racking device, which will rack from one to three needles at any number wanted. This machine is equipped with chain and electric stop motion. The machines are manufactured by Claes & Flentje, Muhlhausen, Germany, combined with the Ainslie short chain device, using American chain links, which do away with blocks and expensive pattern chains. The booth was in charge of S. Broadwin and S. Mishcon.

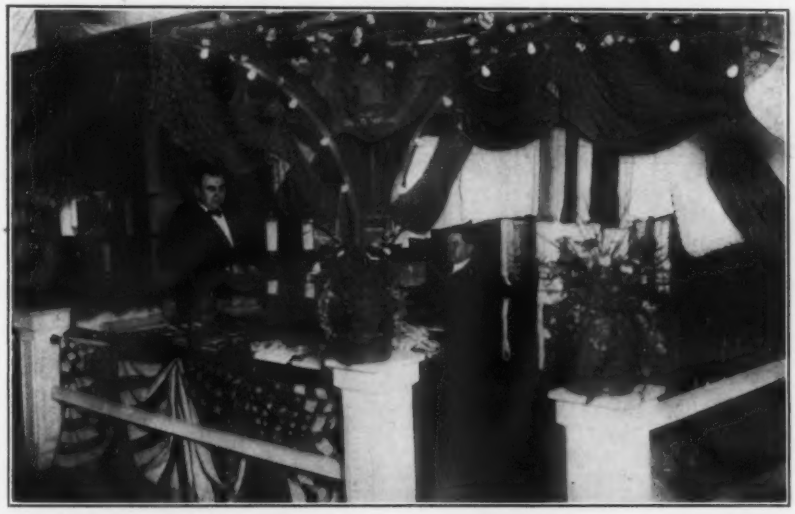
"Wyandotte," the bleaching products shown by the J. B. Ford Co., of Wyandotte, Mich., again attracted much attention. The exhibit consisted of hosiery, underwear and other textile fabrics of silk, cotton, wool, worsted and other fibers and

yarns of all kinds, etc., treated by the various Wyandotte products which have become so popular throughout the trade. The exhibit this year, as usual, was in charge of F. S. Klebart, field manager for the Textile Soda Dept. J. B. Reynolds from Wyandotte was also in attendance.

Paxton & O'Neill, 541 N. 3d St., Philadelphia, exhibited their new full automatic yarn changing and plating machines, giving visitors the opportunity to verify the claim made for them as to the fine quality of the goods produced, as well as their smooth and easy working. These machines combined durability with convenience; the ready access to all parts liable to need adjustment being a feature appreciated by users. The yarn changer with which the machine was equipped was notice-



The Ainslee Knitting Machine Co.



The J. B. Ford Co.

able for its simple design, smooth and positive action and perfect operation. It showed its superiority, especially in plated work, handling the lightest silk so as to give a perfect face to the in pairing. Their method of transferring rib tops for half hose was positive, quick and handy for the operator, and did not break quill points or sinkers. The smooth running and durability of

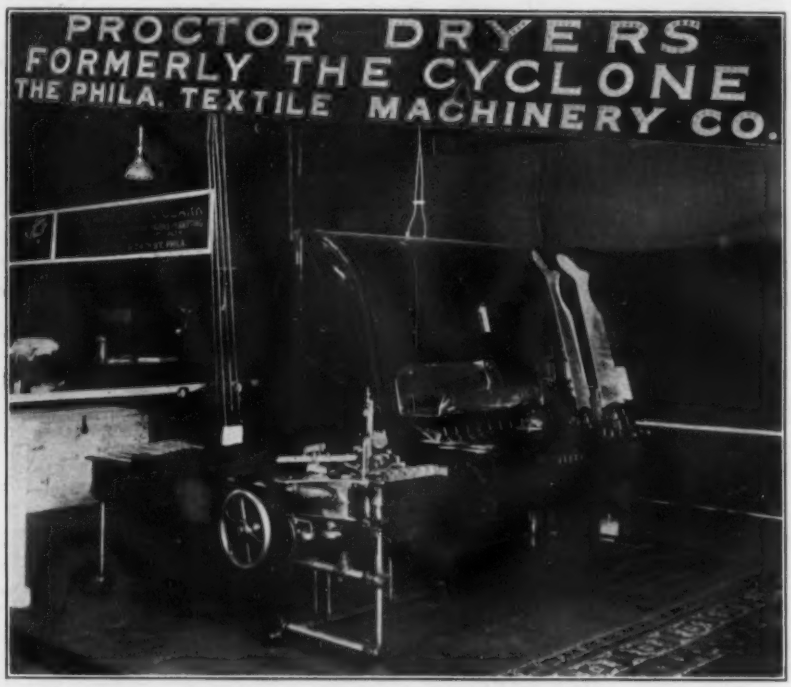
Paxton & O'Neill

Union Special Machine Co.

high splice and double sole, as well as the body of the stocking. The length-measuring device for ladies' hose is also a valuable improvement, giving uniform length and saving much loss of time the machine, the quality of the fabric produced, and the ease with which operators become skilled in handling it, makes it most satisfactory. The exhibit was in charge of Edward Jackson.

The Union Special Machine Co., of Chicago, had an extensive exhibit of their machines that was unique in the matter of driving their machinery, each one being individually driven by electric motor. Among their machines were several new models never before shown, principal of which was a new seaming and trimming machine, class 12,500 F, making a perfectly flat and ornamental seam on ladies' union suits and vests, etc. Another model was of their ornamental figure 8 machine, used for sewing tubular border to ladies' vests in one operation. Still another shown for the first time was their selvedge edge cup feed seaming machine, especially designed for full fashion underwear and selvedge edge sweaters. This exhibit attracted much attention from manufacturers. R. E. Thompson, Jr., manager of the Philadelphia office, was in charge of the exhibit, assisted by a dozen or more of their different representatives, whose names were listed each day on a directory board, displayed in the booth.

The Philadelphia Textile Machinery Co., Philadelphia, Pa., builders of labor and time saving machinery for dyeing, bleaching and finishing, exhibited one of their old style dry boxes with a capacity of 250 dozen per day. This machine was installed in the exhibit simply for comparison between the old method of drying hosiery and a new automatic machine, their latest invention, for boarding, drying and stripping hosiery. This machine practically revolutionizes former methods. It consists of vertical aluminum boards which are carried around through the dry box, an automatic finger attachment removing the stockings from the boards and piling them up in lots of a dozen pairs on a moving table. The machine makes it possible for a boarder to turn out just twice as many stockings as he could by the older methods of doing the same line of work. It may be used on all kinds of hosiery. This machine created a great deal of attention and from opinions expressed will have a large sale among the progressive mills of the country. F. Kershaw, sales manager of the company, with a large corps of assistants, explained in full the operations of the machine.



The Philadelphia Textile Machinery Co.

H. M. Remington, 113 Chestnut St., Philadelphia, sole representative in the United States for McConnell & Co., Ltd., Manchester, England, exhibited a varied line of fine cotton yarns from 40s to 300s, including also a line of carded and combed yarns from 2/48s to 2/120s and mercerized and gassed yarns on cones from 2/120 to 2/140.

J. A. Firsching, of Utica, N. Y., exhibited his "1912" cloth cutting, folding and winding machine, shrinking, steaming and pressing machine; "20th Century" cloth cutting, folding and winding machine and the latest rotary cuff-cutting machine, a big labor saver, making a saving on stays, facings, pants bands, eliminating the unevenness in

getting the folds perfect and saves on each fold, so it enables the manufacturer to get one or two and sometimes three more strips out of a bolt of cloth than with their present method of cutting, doing in one operation what is now being done in two. The shrinking, steaming and pressing machine is one of the latest machines out, and it enables the manufacturer to prepare his cloth properly before cutting. It brings the sizes uniform, lays it up properly and improves the appearance of the garment. The rotary cuff-cutting machine has a rotary crushing cutter and a rotary feed. It increases the production and at the same time cuts close to the welt and prevents cutting it. The machine needs no oil, as it is packed in vaseline, and only requires packing about once a year. The knives require sharpening only once or twice a year. The speed of the machine is unlimited; it depends upon how fast the operator can handle the work. The maintenance of the machine is practically nothing. There is nothing on it to give out, except grinding the knives occasionally.

J. A. Firsching's Exhibit

The Aberfoyle Mfg. Co., Chester, Pa., manufacturers of mercerized yarns, occupied a large space equipped in a comfortable and suitable manner for entertaining their many friends, for whom they provided stationery, telephones, etc. C. L. Gilliland, treasurer of the company and J. H. Thomas, from the mill at Chester. Thos. J. Golden, S. W. Rowcroft and E. F. Surtzer, representing the Philadelphia office in the Lafayette Bldg., 5th and Chestnut Sts., and James Holt, in charge of their Chicago office, were on hand to receive and make it pleasant for any one giving them a call.

The Jenckes Knitting Machine Co., Pawtucket, R. I., showed in operation four of their latest improved machines. A well known "Invincible" knitter, 234 needle 3 1/2-inch cylinder was making ladies' straight mercerized hosiery, also a new machine which they call the "Jenckes' Model E" revolving needle cylinder full automatic knitter. This machine, which is the latest production of their shops, is arranged for plating high spliced heel and double sole, contains non-friction needles and makes a perfect fabric. It is equipped with six yarn fingers, with no intermediate connections, operated direct from the cam drum at the top of the machine. The machine is fitted with ball bearings and is but 18 inches wide. Three models of this new and admirable machine were shown. One operating on 220 needle, 3 3/4 diameter on ladies' plaited silk hose. Also a 240 needle 3 3/4 diameter knitter on ladies' hose, garter top.

The Jenckes Knitting Machine Co.

The Aberfoyle Mfg. Co.

Another on cotton half hose 200 needles 3 3/4 cylinder and a machine 220 needle 3 1/2 cylinder on plated half hose. The exhibit was in charge of

The Standard Machine Co., 340 N. 12th St., Philadelphia, Pa., exhibited their latest "Model G" 144 needle 3 3/4 cylinder on half hose for which

John W. Hepworth & Co.

The Standard Machine Co.

R. J. Morningstar, agent for the company located in the Heed Bldg., Philadelphia, R. J. Jenckes and J. E. Lent, from the main office in Pawtucket. R. S. Beavers, M. C. Miller, also from Pawtucket and Edward Newell from the Philadelphia office.

they claim the largest production of any machine of its kind in the trade. They also showed their 150 needle 3 1/2 inch machine on footing, claiming the same large production. They completed their exhibit with a 220 needle 3 3/4 machine, making

ladies' fine mercerized hosiery. The company was represented by Jacob Bauer, general manager, R. Rahm, southern representative, and Chas. Schoneman, Pennsylvania western, and foreign representative.

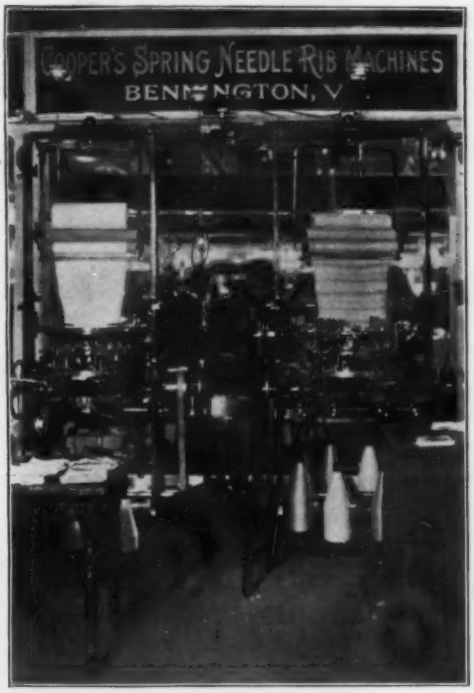
John W. Hepworth & Co., Mascher St. and Lehigh Ave., exhibited in operation, with a competent demonstrator to handle the machines, three loopers, one his old style machine, another an old style single stitch looper equipped with their two thread attachment, and one of their latest improved two thread loopers. Mr. Hepworth explained that their idea in putting the attachment on the market was to enable manufacturers to convert their old single thread machines into two thread loopers at a nominal cost. He also claims for their new looper that it is one of the few machines where the seam lays flat on the points after it is looped and also prevents pin holes in the looping.

The Rose Label Machine Co., of Grand Rapids, Mich., exhibited their latest improved label stitch-

The Rose Label Machine Co.

ing machine with a lady demonstrator. This machine is being used extensively in the underwear trade, sewing on patches to reenforce buttons and button holes. These patches are specially prepared and boxed in one thousand lots at their factory. A large number of orders were taken at their space during the week. The exhibit was in charge of Arthur Rosenthal and Ralph Bulkeley.

The Cooper Spring Needle Rib Machine Co., of Bennington, Vt., exhibited two machines, one body machine, for underwear, and one cuff machine, which they claim to be the only successful spring needle machine of this type. It makes the widely known Cooper underwear. They called attention to several new features, among which were new yarn feeding device, a striping device, and electric stop motion. Chas. S. Kehoe, the man-



The Cooper Spring Needle Machine Co.

ager, was in charge of the exhibit, with Wm. T. Barratt and G. H. Rogers.

The Enterprise Mill Soap Works, Inc., with John F. McNeill, representing them in New York and Maryland and Jos. W. Leberman, general manager and treasurer of the company, were in charge of their exhibit at the show, at which they displayed high grade textile soaps, softeners and oils, making a specialty of showing a line of silk and cotton hosiery treated by their various products.

The Acme Knitting Machine & Needle Co. displayed the different types of seamless hosiery knitters which they build, consisting of a high speed footer, and regular "Acme" knitter with double sole attachment. They made a specialty of a five-inch machine revolving needle type, and also showed a machine for changing their old style machine to a revolving needle type. The company was represented by W. F. Duffy, F. J. Maloney, A. E. Stewart and W. Zaching.

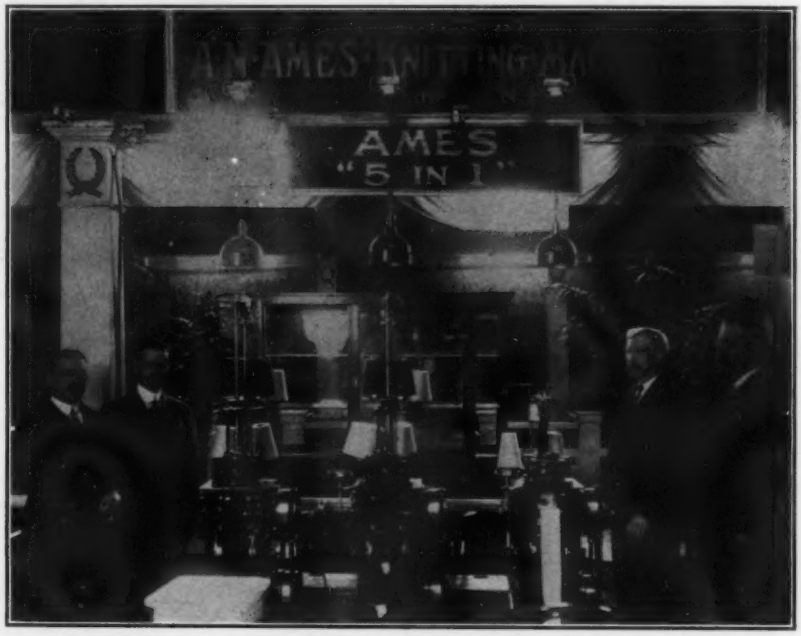
Acme Knitting Machine & Needle Co.

The Continental Latch Needle Co., 120 Liberty St., New York City, showed the full line of latch and spring needles manufactured by Theodor Groz & Sochne, Ebingen, Germany. E. W. S. Jasper was on hand to welcome his old and new customers. He reports having a most prosperous year

The Continental Latch Needle Co.

in 1913, in fact, the best in the history of the company and they are looking forward to beating the record in 1914.

A. N. Ames Knitting Machine Co., Franklin, N. H., with A. N. Ames, Charles A. Scholl and Neill McFadden on hand to demonstrate and explain the merits of their knitting machines, exhibited the Ames "5 in 1" 200 needle machine making split foot ladies' hose; a 200 needle machine with changed heel and toe, black leg, white heel and toe, and a 176 needle plain machine making ladies' hose running at a speed of 300 revolutions a minute knitting the heel and toe at 130 revolutions a minute. This machine is also adapted for putting out ribbed children's and misses' hose at a largely increased production.



A. N. Ames Knitting Machine Co.

American Laundry Machine Co., of Rochester, N. Y., exhibited an underwear press called their automatic press, for which they claim uniformity and large production. This machine was equipped with two motors, one of which is a timing motor, the other a pressure motor. The duration of pressure can be regulated from 7 to 60 seconds. This machine uses dry heat. The garments are spread on canvas frames, six of which are furnished with each machine. W. W. Miller, who represented the company, reported much interest shown in the machine.

W. O'Donnell of Philadelphia, district manager for Pennsylvania and the Southern States for the Metropolitan Sewing Machine Co., assisted by experts from the main factory in Nyack, N. Y., showed three styles of their well-known lace machines: 60-C-H-R, 50-C-H and 31-A-C, the latter type machine being their latest lace machine fitted with a trimmer; also their 70-C-H three-needle machine for flaps and cuffs, 80-2-G for facing festooning in one operation, 28-G-C button stay machine and a full line of single and double-needle collarette machines, the 50-C-H-10 tapered collarette machine being the feature of the exhibit. Also their new 151 type top and bottom rotary shaft machine, which is a double-chain stitch machine having a rotary construction. In addition to the above, they also showed a full line of machines for the manufacture of sweaters.

The Karl Schlatter Dye Works, Inc., Philadelphia, exhibited samples of dyed hosiery and cotton and mercerized yarns, wood silk, natural silk and cotton sized, art silk and cotton mixed hosiery. Benjamin Firth, their representative, had charge of the exhibit.

Andreykovicz & Dunk, Inc., 58 N. Front St., Philadelphia, showed a full line of colors, including the latest and most fashionable shades, for silk and cotton hosiery, also sulphur and developed blacks, also their various grades of soaps, softeners, etc.

The Pigeon Machine Co., Norristown, Pa., who exhibited their new Spring Needle Knitting Machine at the 1913 exhibition for the first time, again showed their machines in a practically new dress. One was a footer, simple and speedy in construction. At the last exhibition, the machine shown was for string work only; this year it was

shown with a dropping attachment for hose and in half-hose machines, 3 1/2-inch with simple transfer and with a speed of 350 revolutions per minute, in comparison with 280 used last year, a speed increase of 25 per cent. In the Pigeon Machine, the quality of the stitch is claimed to be improved by the use of spring needles, while the rate of production is also brought back to that of medium hosiery. The exhibit also contained a 1-3 3/4-inch diameter, 220 needle machine, making plated cotton and silk hosiery and a machine of the same diameter 240 needles for making fine gauge rough thread work, both operating ladies' hosiery. Albert Pigeon, the inventor of the machine, in

The Pigeon Machine Co.

The Roessler & Hasslacher Chemical Co.

addition to John Ferguson, manager of the company and Robert Wrightson were in attendance.

The Roessler & Hasslacher Chemical Co., 100 William St., New York, exhibited a full line of peroxide bleached goods which included pearl buttons, shirting and cotton towelings. Their towelings attracted a great deal of attention inasmuch as they were successfully worked in a metal keir, with peroxide and those containing vat dyed borders, which have been intensified during the process, and the towels gained 15 per cent. in weight over the lime bleached goods, and had all the high qualities of the peroxide bleach at a cost not exceeding that of the lime method. Other lines of interest to the novelty trade was the bleaching, laces and embroidery thread, also artificial silks, all bleached at a low cost without an expensive equipment of machinery. Peroxide still holds its interest with the manufacturers of woolen, worsted, merino, cotton, silk and their mixes. R. A. Carter was in charge of the exhibit, assisted by J. T. McCarty and both were kept very busy giving technical information.

The Uniform Dyeing Machine Co., owned and operated by the Hussong Dyeing Machine Company, exhibited complete machines for both the Uniform and Hussong, but of very much reduced sizes. Both machines were constructed with transparencies that afforded an opportunity to study the fluid in circulation. The Uniform, which was motor driven, was loaded with hosiery, and attracted the attention of all those interested in hosiery dyeing. The Hussong machine exhibited was that shown at the textile exhibit in Boston, during the week of April 27th. It was loaded with a batch of yarn and equipped with a hoist of suitable size that tended to illustrate its completeness. The model was also equipped with their latest improved and patented type of yarn rack, and false bottom. Other minor improvements in the machine were embodied in this model. In attendance at the exhibit were J. H. Thompson, general manager; A. R. Heritage of the sales force.

Morris & Co., Inc., at their exhibit, in conjunction with models of the Uniform and Hussong Dyeing Machine, which companies are owned and operated by them, exhibited samples of their distinctive type of duck baskets, with both wood shoes and steel runners. The baskets were made after their regular construction of brown striped duck of their manufacture. In attendance at the exhibit were J. H. Thompson, general manager of the company and W. J. McElmoyl, manager of the Duck Basket Dept.

Uniform Dyeing Machine Co. Hussong Dyeing Machine Co. Morris & Co., Inc.

An all steel baling press, with samples of the bales of waste, such as is accumulated in textile mills, was shown by the Bicking Paper Press Co., 111 N. 2nd St., Philadelphia. This press was made entirely of steel, complying with all the requirements of the insurance laws. The press has a baling capacity up to 200 pounds according to quality of material and is constructed so that burlap could be used for wrapping the material being baled. A feature demonstrated by the company was the position of the follower when closed, ready for filling, side chains being used for raising the follower to a perpendicular position at the rear of the press, leaving the top open and convenient for depositing the waste in the machine and when it was full forcing the follower over and downward into the press by means of a crank at the top, the whole operation being very simple.

With John M. Zurn, president of the company, assisted by John L. Wilson and H. B. McKinley, The O. F. Zurn Co., Philadelphia, exhibited their various lines of softeners, oils, etc., for use in textile mills. Among the specialties to which they especially called attention were Lusterine softeners, for hosiery, Jap-a-No Silk oil, Glyco-developer, for intensifying colors, and Crown scroop finish for scrooping purposes.

Eastman Machine Co., of Buffalo, N. Y., showed a complete line of cutting machines. Their specialty was a machine with full ball and roller bearings fitted for alternating and direct current, also a round wheel cutter with both currents. This company is manufacturing cutting machines for all classes of the cutting up trades using cloth of any description. They offer to give free demonstration of their machine at any time

The O. F. Zurn Co.

T. J. Porter & Sons, 119 S. 4th St., Philadelphia, importers and dealers in yarns, with Wm. Porter, J. A. Stuart Porter and Meredith F. Porter on hand to greet the knitters, exhibited the fine mercerized yarns of Robert Marsland & Co., Ltd., Manchester, England; the linen splicing yarns of Lindsay, Thompson & Co., Ltd., Belfast, Ireland, and of particular interest to the manufacturers of fine worsted underwear, the fine French spun worsted and merino yarns of William Holland & Sons, Manchester, England. This firm is also famous for its cashmere hosiery yarns. For sweater manufacturers they exhibited for the first time in this country the yarns of John Paton, Son & Co., Ltd., Alloa, Scotland, the original spinners of Scotch heather mixtures and fancy effects in both wool and worsted.

or any place to those in the trade who are interested. The Eastman Co. has been manufacturing cutting machines for the past 18 years, and in that time have placed hundreds of Eastman machines in mills throughout the country, with the result that these mills have been able to reduce their cutting cost from 30 to 40 per cent., as it is claimed that an operator with an Eastman cutter can cut up as much in one hour as can be cut in five hours by any other method, and far more accurately. Fred Hellge was in charge of the exhibit.

Scholler Bros. Co., 3301 Amber St., Philadelphia, exhibited their entire line of soaps, softeners and specialties for dyers, bleachers and finishers. F. C. and H. H. Scholler were both in attendance during the week.

The Berlin Aniline Hosiery Works, 213 Water

St., New York, showed in fine cases of glass, hosiery of cotton, mercerized, silk, both artificial

The Eastman Machine Co.

The Berlin Aniline Works

and natural, dyed in a beautiful array of colors. The company made a special feature of blacks, describing their product as the "Berlin Fast Blacks," a trade name which has become exceedingly popular. They also showed a line of sulphur blacks as well as Zambesi blacks on hosiery ranging from a medium grade to the highest and first quality of mercerized cotton and silk goods.

Alfred Suter, 200 Fifth Ave., New York, exhibited the latest types of testing apparatus and other new machinery, including a new type conditioning oven with electric heating appliance and pre-drying arrangement and a new twist tester with magnifying glass for getting at the spinning twist. An arrangement was provided which gave to all threads being tested the same tension in order to secure accurate tests. Yarn scales, roving scales, reels and the automatic strength and elasticity testers for yarns and cloth, a new pick counter with three lenses magnifying 6.20 and 41 times, a

Alfred Suter's Exhibit

Harding & Fancourt

new reed cleaning and polishing machine were shown. Many visitors availed themselves of the opportunity of testing yarn. The ring traveler setter, for which Mr. Suter is agent, attracted much attention from spinners. There was a full set of catalogs of all the other machines which Mr. Suter imports on hand. Besides Mr. Suter, Gordon M. Stanton and Fred Mostertz were in attendance.

Harding & Fancourt, Inc., 576 S. Delaware Ave., Philadelphia, showed a varied and large line of soaps, oils and softeners, which are so well known to the knitting trade. A new and up to date laboratory has recently been installed by them at their plant, to which both Mr. Harding and Mr. Fancourt, who took personal charge of their exhibit, conducted old as well as new customers interested in lowering the cost of finishing their product for the purpose of giving them expert advice.

The Acme Staple Co., Ltd., 112 N. 9th St., Camden, N. J., exhibited the "Acme" Staple Binder, a machine which has become exceedingly popular in the knitting trade not only on account of its price, which is within the means of anyone, but from the fact that it does its work in the most rapid and efficient manner. The machines use a very fine wire staple of soft material, which can be easily removed without puncturing or tearing the fabric. The company also showed their other and various lines of staple binders for office as well as mill work. Mr. Bernheiser assisted in showing the running of the machine as well as explaining its value to those present.

The exhibit of the C. E. Hardenbrook Company consisted of a few of the large number of high-grade special sewing machines, which they handle in representing the Frederick Osann Company, of New York and Boston, such as the Union Button Sewing Machine. This machine sews buttons with a flexible stitch, made in different types for all classes of textile work, for fine, medium or heavy materials. While the "Union" Button Sewer uses only a single thread, and has no knives and no bobbins, it is claimed that buttons sewed with this machine cannot come off. In consideration of the fact that there are a considerable number of manufacturers who make extra heavy sweaters, a new and special type of "Union" Button Sewer has been designed for handling heavy work. The Jones High-speed Lock-stitch Machine was also shown. This machine is made in two types, H. S. 5 Short Arm and H. S. 6 Long Arm. It is used for sewing facings on underwear, and all other plain-stitch operations. C. E. Hardenbrook in person directed their exhibit.

The Acme Staple Co. C. E. Hardenbrook Co.

The Walter R. Ziegler, Riverside, N. J., exhibit consisted of various bands, labels, box tops, etc., in fact all grades of printing for knitting mills, showing what can be done in the way of printing in a plant containing an equipment of the most modern and up to date machinery.

The Lynwood Mfg. Co., Hancock and Westmoreland Sts., showed a line of the different products manufactured in their plant consisting of hosiery stamps, spring brand needles and finishing room supplies.

The Manufacturers Supplies Co., Juniper and Cherry Sts., Philadelphia, in addition to showing the Standard Brand of latch needles manufactured by the Excelsior Needle Co. of Torrington, Conn., for which they are the Philadelphia representatives, also showed other and various lines of supplies for knitting mills for which they are distributors in this locality.

W. T. Lane & Brother, of Poughkeepsie, N. Y., exhibited their general line of canvas mill baskets and trucks. The exhibit was in charge of A. H. Lane and Mr. Curley. This concern has studied the peculiar requirements of hosiery and underwear manufacturers and whenever the need of a particular kind of basket or truck is apparent they meet it, with the result that the demand for their

W. T. Lane & Bro.

specialties keeps them busy all the year round. They make their own duck and turn out a first-class product.

Jones & Hardy, Inc., of Hudson, N. Y., dealers in mill supplies, exhibited a few specialties for use, particularly in hosiery and underwear mills, consisting of the famous Excelsior and New Process press boards, also another small article of merit, a patented ring and spring, for which this concern has the exclusive agency, made up with tie rope. These are used for tying up dozens of goods in mills where the coupon is to be used. Also two grades of stainless oil, which are well worth consideration among those who desire to reduce the "seconds," due to oil stains, to a minimum. Other specialties were exhibited, the display being one worthy of attention.

The Weinerth Knitting & Machine Co., Reading, Pa., exhibited the Weinerth high spliced heel and sole floating thread cutting machine, a device which is now being used in many hosiery mills.

A line of hosiery samples and yarns dyed in various shades, making a specialty of Hagars Intense Blacks, a color which is still making a reputation for their plant, was shown by the Nicetown Dye Works, Philadelphia, Pa.

F. A. Straus & Co., 193-95 Greene St., New York, with Jack Frank, one of their representatives in charge, exhibited a line of high grade Japan, Tussah and artificial silks and combination yarns and mercerized cotton yarns.

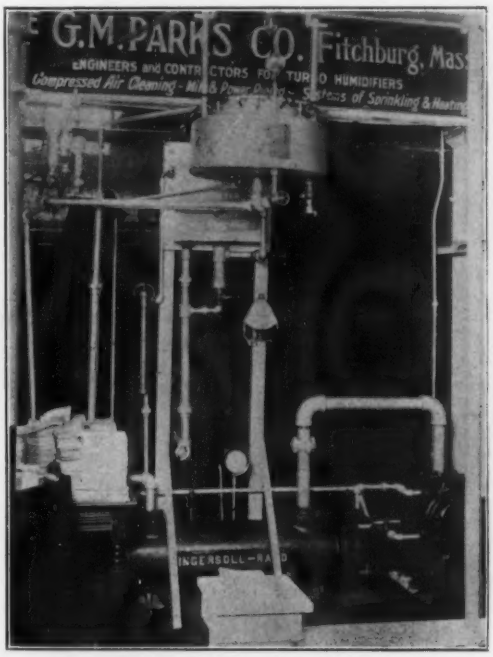
H. A. James & Co., 315 Fourth Ave., New York City, showed a line of yarns suitable for knitting purposes from Southern and New England mills in counts ranging from 30s to 60s in single and ply combed and carded yarns.

Geo. C. Decker, 15 S. 3rd St., Philadelphia, representing the Bradley Stencil Machine Company, exhibited their new Model 1/2 inch, 3/4 inch and 1 1/2 inch letter Long and Round styles of stencil cutting machines which have been named by many concerns using them as the "Shipping Clerks Typewriter." They also showed improved stencil filing cabinets, guaranteed non-breakable fountain stencil brushes and waterproof stenciling and marking inks in all colors.

The Clipper Belt Lacer Co., Grand Rapids, Mich., through their Philadelphia representatives, Lacy & Hursh, 40 N. 7th St., exhibited one of their latest improved belt lacing machines for the lacing of belts in an economical and rapid manner, also the metal lacings in cases which are supplied with each machine.

Albert Ivins Croll, Mariner & Merchant Bldg., Philadelphia, selling agent for Sharp Mfg. Co., New Bedford, Mass., exhibited the various grades of cotton yarn spun by this concern from 10s to 120s in combed peelers, Egyptians and Sea Islands, making a specialty of splicing yarn on small cones both plain and mercerized for double sole and high splicing.

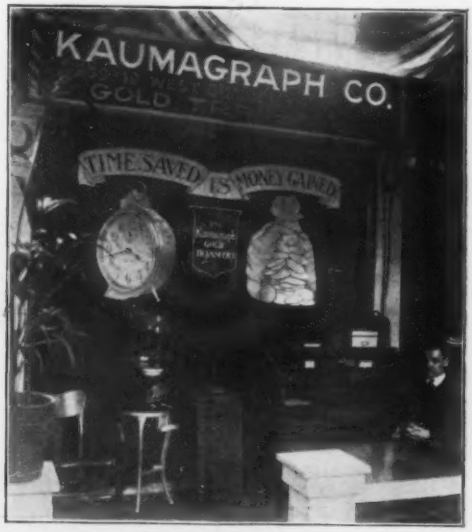
The Wholefoot Hosiery Stamp Co., 1310 N. Lawrence St., Philadelphia, gave a practical demonstration of their Wholefoot Hosiery Stamp which is used for stamping the whole foot of a stocking by hand with one impression, an operation now performed by the use of three separate stamps.


G.M. PARKS CO. Fitchburg, Mass.
ENGINEERS and CONTRACTORS FOR TURBO HUMIDIFIERS
Compressed Air Cleaning - Mill & Power Piping - Systems of Sprinkling & Heating
INGERSOLL-RAND

The G. M. Parks Co.

The G. M. Parks Co., of Fitchburg, Mass., exhibited their well known Turbo Humidifier, both in standard lines of construction and the so-called cluster tank. This latter device was developed for humidifying small spaces, the nature of the apparatus being such that it is assembled and tested in their shops and shipped in that shape, which makes it possible for any ordinary mechanic to erect. This eliminates the cost of transportation of men and tools, and makes it possible to equip small jobs more reasonably. F. W. Parks, president of the company, B. S. Cottrell and C. W. Scott were in attendance. This was their first exhibit at the knit goods show and the growing interest in humidity by knitting manufacturers kept them busy explaining the advantages of humidified rooms.

The Kaumagraph Co., 209 W. 38th St., New York, through Trowbridge Marston, demonstrated to the knitters the value of using their methods of stamping fabrics, especially a very attractive gold stamp for hosiery. They called attention to the great facility with which their stamps were applied, the labor cost being not more than one-third that of other processes. Frank H. Marston was over from New York several days.



The Kaumagraph Co.

F. A. Brown and L. F. Schaeffer, in charge of the selling force of Thomas Wolstenholme Sons & Co., Frankford Ave. and Westmoreland St., Philadelphia, were again in charge of the company's exhibit. This year as in former years showed the various lines of domestic French and Bradford Spun Worsted Yarns, for which the company has made a name among the knitters of high grade worsted fabrics. Their booth was tastefully furnished.

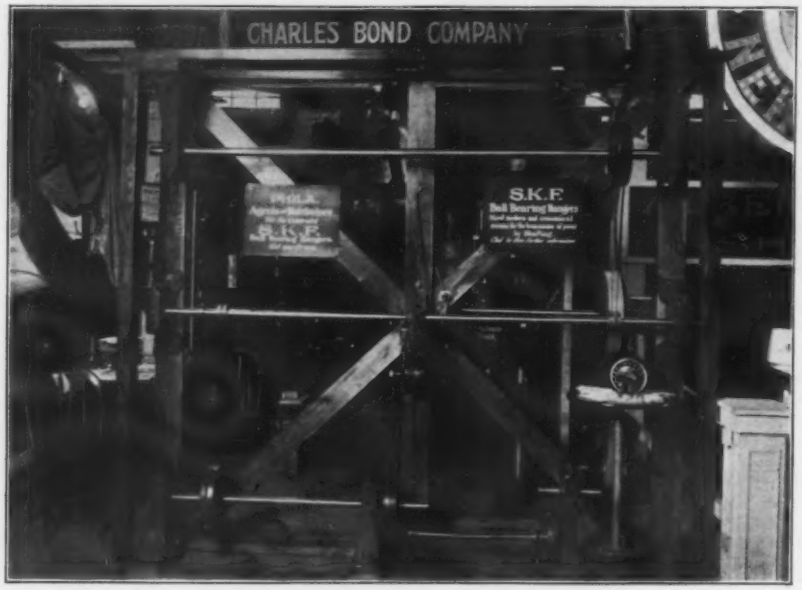
The Beckert Needle & Supply Co. fitted up their space for the reception of their friends and customers, many of whom called on Manager C. Walter Jones. Mr. Jones was the host for a large party of manufacturers who attended the ball game one afternoon as his guests.

The Sauquoit Spinning Co., Capron, N. Y., with W. H. Merriman from the main office in charge and S. C. Hoffman, their Philadelphia representative assisting him, exhibited the various grades of cotton yarns which they have been selling to the hosiery and underwear trades for several years.

Richard A. Blythe, Mariner & Merchant Bldg., Philadelphia, showed samples of combed cotton yarns spun by the Crown Mfg. Co., Pawtucket, R. I., and knitting silk manufactured by the Lehigh Valley Silk Mills of South Bethlehem, Pa., for both of whom he is selling in this territory.

Chas. Beck Co., 609 Chestnut St., Philadelphia, exhibited the Brehmer pointed staple stitching machine which has become very popular in hosiery mills for attaching bands, labels and rider tickets to their product. With a competent demonstrator on hand the machine was shown in operation making its own staples, cut to fine needle points, enabling it to penetrate the finest fabric without injury, making a flat stitch well clinched on the under side of the hosiery, and showing an output of from 250 to 500 pairs of hosiery per day.

The Chas. Beck Co.

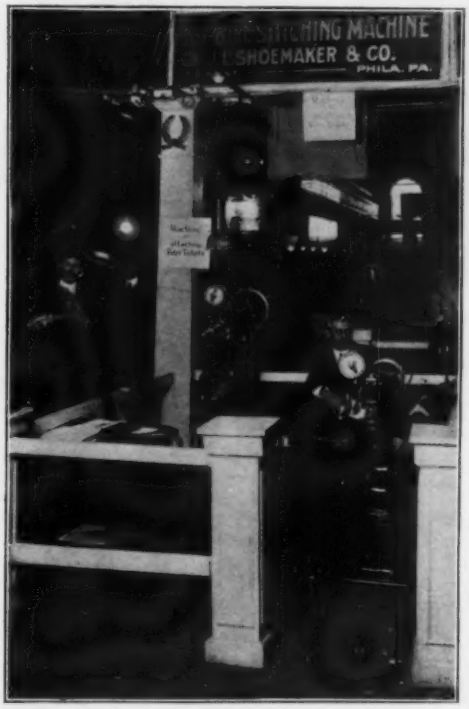


The Chas. Bond Co.

The Charles Bond Co., 520 Arch St., Philadelphia, mill supplies of all kinds, exhibited various lines of supplies for knitting and textile mills. Their

exhibits as a rule always contain something of a distinct and unique nature, and of particular interest to those manufacturers who desire to increase the efficiency as well as making their plants up to date. This year they feature their popular Sterling belting, the Wahlstrom automatic drill chuck, the Grundy flexible insulated coupling and the S. K. F. ball bearing line shaft hangers. Other products handled by the company are so numerous that it is impossible to give a full list of what they can supply and many visitors to their booth secured from them catalogues for use at future times for the purpose of sending them orders.

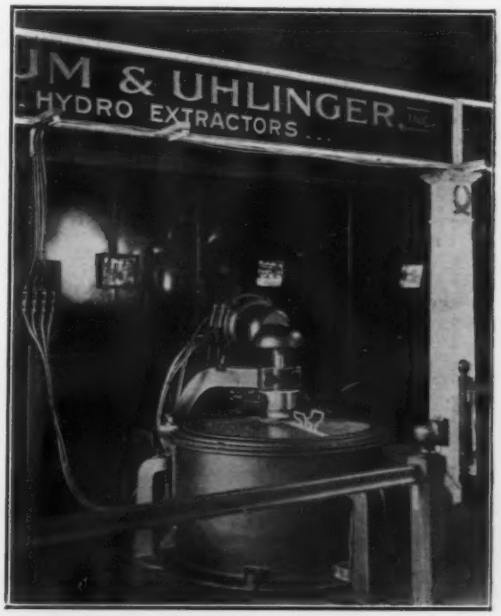
J. L. Shoemaker & Co., 15 S. 6th St., Philadelphia, again as in previous years showed the New Jersey wire stitcher, which they claimed is the simplest machine on the market for attaching rider tickets to hosiery. The machine, using round wire, as fine as No. 30, was easily adjusted to attach tickets to any thickness of fabric from the thinnest to the heaviest, the tickets being attached to either the outside or inside of the stockings as desired, the staples having sharpened points, an insurance against tearing the goods.



J. L. Shoemaker & Co.

Edwin A. Newton, 310 N. 4th St., one of the large dealers in second hand knitting machinery, exhibited various articles in the way of appliances handled by him consisting of scales, cylinders, dials, etc., and other articles for use in knitting mills.

Schaum & Uhlinger, Inc., 2nd and Glenwood Ave., exhibited a 42-inch motor-driven extractor, a feature of the machine and one new to the trade being a safety cover, which is required by factory regulations in some of the states. The machine was self balanced and heavily built for safety and long service, had a S. & U. self oiling step box. The company, which has been building extractors



Schaum & Uhlinger, Inc.

since 1850, with thousands in operation, have recently bought out an under driven electric extractor with a vertical motor, direct connected through a flexible coupling, with the top of the basket entirely open, especially adapted for piece goods. They also build extractors for both drives equipped with vertical or horizontal engines of their own manufacture.

The Ideal Stencil Cutting Machine for use in shipping rooms was shown by the Ideal Stencil Machine Co., Belleville, Ill. The machine was noted for the fine manner in which it cut paper stencils to be used in conjunction with an inked brush, leaving a neat, plain, legible marking, a method now in use by up to date concerns who are interested in saving both time and expense in their shipping rooms.

Perfectly made stamps and inks are a necessary adjunct to the merchandising of hosiery, no matter what the quality, and for this purpose the Wells Stamp Co., 2642 N. 11th St., Philadelphia, showed not only their high grade stamps, but also inks, and to those interested in Gold stamping, a new and improved Gold Ink.

The exhibit of the Emerson Apparatus Co., of Boston, consisted of a four basket textile conditioning oven (equipped to test one sample at a time) and the Emerson fuel calorimeter for determining the heat value of fuels. The large oven is designed for determining the moisture content of relatively large samples of textile materials, such as yarns, worsted tops, cloth, wool, jute, etc. The small oven is arranged to operate in similar manner to the larger oven, except that the temperature control is maintained by an adjustable rheostat in place of the automatic thermostat regulation, and its interior dimensions permit of only one sample-holding basket. The Emerson fuel calorimeter determines the value of coal in terms of the heat units it contains, and enables the purchaser to buy his coal at so many heat units per dollar.

The Emerson Apparatus Co.

Peech Sons & Phillips Co., Camden, N. J., showed a line of mercerized yarns in various counts suitable for the knitting trade, mercerized in their own plant and under their own observation, insuring work of the highest character. The exhibit was in charge of both Mr. Peech and Mr. Phillips, assisted by their traveling representative, Geo. C. Turner.

E. B. Gorman as usual had charge of the exhibit for the Nonotuck Silk Co., 1027 Arch St., Philadelphia. Mr. Gorman being well known to the trade, was continually busy entertaining his old trade as well as new customers, and showing their various lines of spun and natural silk, dyed and undyed.

Wm. F. Corbett, 34th and Spring Garden St., Philadelphia, representative of the German-American Needle Co., reported a very successful week. Mr. Corbett carries and exhibited a complete stock of needles for all domestic as well as all foreign machines in the sweater, underwear and hosiery trade, with special needles for hosiery machines.

The exhibit of the Tolhurst Machine Works, Troy, N. Y., consisted of a 40-inch motor-driven extractor of their well known over driven type, the exhibit being an operating one. This is only one of the different styles of extractors built by this firm, and they claim that for textile mill work in general the old, reliable design, with the gyrating step bearing is the best when satisfaction is

The Tolhurst Machine Co.

desired. F. A. Tolhurst and E. W. Vincent were in charge of the exhibit and were always glad, when opportunity offered, to start up the machine, explaining its merits and showing the marvellous ease and smoothness with which it handled an unbalanced load.

The S. A. Salvage Company, cotton, silk and worsted yarns, located at 463 Broome St., New York, showed samples of the product of Aykroyd & Grandage, Ltd., Bradford, England, consisting of mercerized and dyed yarns in counts up to 2/300s. They also showed yarns from such concerns represented by them as S. Bourne & Co., Ltd., Gorton & Halliday, J. T. Brocklehurst & Sons, Ltd., and fine French spun worsted yarns, from the Forstmann & Huffmann Co., of Passaic, N. J. As a souvenir of the occasion the company presented the visitors to the exhibition with a little handbook containing yarn tables, etc., and request any one not receiving a copy to communicate with them and they will be glad to forward a copy to any one desiring same.

The Beattie Mfg. Co., Cohoes, N. Y., exhibited two of their well known Nonpareil two thread loopers, and reported a great deal of attention and interest was displayed by visitors. The machines were both in operation, and their advantages explained by Wm. Beattie and W. Jos. Harrison.

The New York Revolving Potable Elevator Company, of Jersey City, exhibited the very latest in revolvators, portable elevators or tiering machines. They have spent much time in improving and perfecting the tiering machine, both hand power and motor-driven, making a particular study of the warehousing, storing and shipping troubles that the textile industry has to contend with, and are therefore well equipped to meet and overcome many difficulties with their patented revolving portable elevator. Raymond D. Fisher and Frederick A. Bossack were in attendance during exhibition hours.

The New York Revolving Portable Elevator Co.

The Textile World Record's booth served as a reception room for their friends and customers and headquarters for the staff. Lord & Nagle Co.'s various textile publications, directories and books were on sale. Frank L. Nagle, president of the company, was in charge, assisted by William J. Flesh, the Philadelphia manager, and H. T. Ross.

The various textile publications represented at the exhibition consisted of the following journals: The Textile Manufacturers Journal, New York; Daily Trade Record, N. Y. City; American Cotton & Wool Reporter, Boston, Mass.; "Cotton," Atlanta, Ga.; Posselts Textile Journal, Philadelphia, and Textile American, Boston, Mass. All had representatives on the floor for the purpose of reporting the convention and exhibition and entertaining their friends.

The Multi Signal Co., of Boston, Mass., exhibited their system for calling persons throughout the mills or factories. This system they claim to be cheaper and quicker than the telephone switch board, as the signal rings in every department of the works at once instead of calling up each station separately. A special fire alarm attachment is included in every Multi call, so that every person in the place may be almost instantly notified when a fire breaks out and where it is. The exhibit was used to good effect calling different persons wanted during the show, and was in charge of W. M. Waite, vice-president of the company.

THE SOUTHERN NEW ENGLAND TEXTILE CLUB

The May meeting of the Southern New England Textile Club was held at the famous Pomham Club House near Providence, R. I., on Saturday, May 16th, and was one of the best attended and most enjoyable of their many gatherings. The privileges of the Club House as a meeting place were secured through the courtesy of Herbert W. Rice, of the U. S. Gutta Percha Paint Co., and there were many expressions of pleasure at the self-satisfying qualities of both the place and its furnishings.

An elaborate lunch and most substantial dinner were the attractions of the day for the inner man and were such as only Pomham can produce. Some idea of the popularity of this association may be obtained from the fact that 230 members and guests were present. President Henry C. Dexter, who recently returned from a trip abroad, presided and conducted the brief business session in his usual able manner. A nominating committee, composed of Messrs. A. W. Dimick, Albert H. Golf and Clarence R. Howe, was appointed to present a list of officers to be elected at the next meeting to serve for the ensuing year.

This club has grown continuously in popularity ever since its organization and a waiting list has always been one of its big assets, but an amendment to the by-laws has been presented whereby the membership might be increased to 400, 250 manufacturers and 150 of allied interests. This is a step in the right direction. It will be acted upon at the next meeting in June.

Arrangements have been made for the next meeting to be held at the Pomham Club also, and there is every indication of a big attendance.

The Renfrew Mfg. Co., Adams, Mass., will install new electrical drive equipment consisting of sixty-one small motors and sixteen larger motors ranging from 3 h. p. to 50 h. p., switches, etc., all of which have been purchased from the General Electric Company.

Napier & Herrick, selling agents for knit underwear and sweater coats, at 347 Broadway, New York, have added another office to their already commodious salesrooms and report doing a very satisfactory business on ladies' brushed tango vests and that duplicate orders are coming in continuously.

COLORS IN FANCY WOOL GOODS

BY RUTLEDGE

Next in importance to the fabric in the manufacture of fancy woolen goods is the arrangement of colors in their construction. The study of this is interesting and the solving of its problems well rewarded. The object is to find how the contrasts of light and shade can best be utilized to secure good results in bright, clear colors. There are two divisions of shade known in the trade as solids and mixtures, each having its own place, and it is in this respect that the understanding is often uncertain and the ideas confused. The question is often asked, "Why should these shades be made in solids instead of mixtures or vice. versa?" The main object in getting up a line of sample shades is to have the contrast between the dark and light ones as sharp and well defined as possible, so that in making patterns for styles such as half of color and half of light, they will show up effectively. For this purpose the dark colors in the solid divisions should be used, such as drabs, browns, blues and black. Their characteritics are full and heavy, but makes the brightness of the light colors more striking by the contrast.

The light shades should be in the mixture division for the following reasons: Most designers know of the uplifting effect which white has upon any ground color for decorative purposes. Since the system of dyeing yarn in the skein for woolen goods has been discarded, the solid light colors are out of place in the woolen group, and necessarily belong to worsted. Another apparent defect caused by using solid light colors is that in the working processes the floating particles of substance not only adhere to them and show up faulty, but this cause is also within the material itself, composed of specks of dead wool and animal matter, which in most cases the light dyes do not cover up and which can only be removed from the cloth by picking out with the hand. These objectionable features can be entirely eliminated by adding a small percentage of white to the light colors, say from 2 1/2 to 10 per cent. Have the solid colors made a little deeper and brighter so that the exact shade required can be matched up by the addition of the white. When darker toned solid colors are wanted and where white is not suitable, small percentage of the same color, but a little lighter, should be used and the exact shade of worsted thus matched up as in the other case. Care must be taken to have the quality of the wool for mixing such that it will card out clear, and of a staple fine enough not to work out in the filling and show mixy in the finished cloth. By this system it will be found that not only are the colors improved in appearance, but the need for speck dyeing which is so unsatisfactory on fancy goods will be much lessened.

A NAME FOR ARTIFICIAL SILK

Lockport, N. Y., Apr. 24, 1914.

Editor Textile World Record:

Having read in the April issue the paragraph headed: "Wanted a Name for Artificial Silk," I would suggest that it be named "Klis." This word is formed by a reversal of the letters in silk. The pronunciation could also be a reversal of the sound of the original word. With a little publicity the idea would catch very quickly, and as it is a reversal in both spelling and pronunciation it would be easy to remember. The artificial silk manufacturers would thus have a substitute which is different, yet is like the idea to be implied.

Very truly yours,

J. E. Emerson, Supt.,
Niagara Textile Co.

[Mr. Emerson's suggestion has been submitted to the British Silk Association for consideration.—Ed.]

* * *

Rockford College,
Rockford, Ill.

Editor Textile World Record:

I would suggest the name "Lustrose" for artificial silk. Rose A. Baird.

* * *

Piqua, O.

Editor Textile World Record:

In looking over a recent issue of the Textile World Record I came across an item headed: "Wanted, a Name." I suggest the name "Bluff Silk" for the product known as artificial silk.

(Mrs.) Gertrude O. Bulson.

Correspondence and Notes

UPON TEXTILE TOPICS AT HOME AND ABROAD

EUROPEAN METHODS OF CARBONIZING RAW STOCK AND PIECES

BY ROBERT DANTZER

Translated from the French by the Editor of the Textile World Record

(Continued from May.)

Carbonizing Wool with Mineral Salts

There are a certain number of mineral salts which carbonize the vegetable substances, but do not affect the wool fibers or the shade which they may have been dyed. The use of chloride of alluminum for this process was patented in 1877 by Jolly of Elbeuf. The experiments by Chevreul, Pommier, Salvetat, Barral, Lecerf and others showed that this process did not affect the pliability or strength of the wool fiber and moreover that it had no influence on the color of the wool or subsequent fulling process. The wool is immersed in a chloride of aluminum solution at 6° to 7° Be., extracted, dried, and then heated at a temperature of 260° F. for about one hour. The carbonized vegetable material should be removed immediately by passing the wool through the crushing and dusting machine, because the crushing of the vegetable substances is rendered more difficult when the material has absorbed a normal degree of moisture from the air. Experiments have shown that wool can be carbonized with chloride of zinc and acid phosphate of lime, but these materials are rarely employed for this purpose.

Carbonizing Rags

After sorting and grading, the rags are carbonized in order to destroy the cotton threads that may be present. Liquid acids and gaseous acids are used for this purpose, the Schirp machine being extensively used for the gas process.

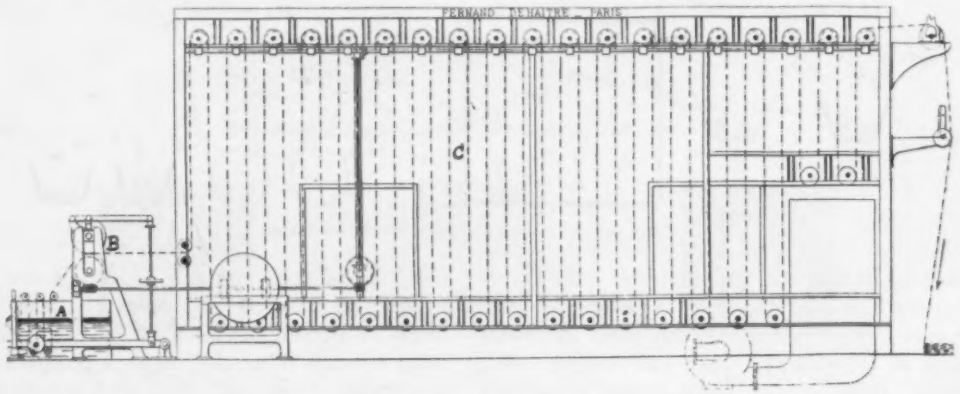


FIG. 9. A CONTINUOUS MERCERIZING MACHINE

Carbonizing Cloth

Wool cloths are carbonized by the same processes used for raw stock. The sulphuric acid process is generally preferred although hydrochloric acid is frequently used. The work involves the following processes:

1. Soaking the cloth in an acid bath at 3° to 5° Be.

2. Removing the excess liquor with a hydro-extractor or by squeeze rolls.

3. Drying at 210° F. in a hot air dryer. Sometimes the process is facilitated by drying on steam cylinders at 280° to 300° F., but it is necessary to run them very rapidly.

4. Rinsing in water which is sometimes made slightly alkaline in order to neutralize any acid that may remain in the goods.

In order to make sure of neutralizing the acid, the goods are rinsed and immersed several times in solutions of various salts, such as alum, tin, sulphate of zinc or chloride of lime. This additional treatment is, however, of little value, and often causes difficulty in the subsequent dyeing of the goods.

Carbonizing with liquid acids involves a number of difficulties:

1. Experience has shown that sulphuric acid is retained by the wool notwithstanding repeated rinsing. As a result the color is often changed by the acid notwithstanding a previous treatment in alkaline baths.

2. The presence of acid in the goods frequently retards the fulling process and causes chafing of the material. For this reason it is not advisable to carbonize wool goods before fulling. From what has been said it is evidence that carbonizing with liquid acids is far from being a perfect process; nevertheless it has enabled manufacturers to use wools that otherwise would be unfit for manufacturing into goods.

The Use of Gaseous Acids

Among the different methods used are those of Rottier and Sirtain. The Rottier process consists in exposing the cloth to hydrochloric acid gas without previous dampening and then passing the material over a frame heated by gas, which gives the temperature necessary for carbonizing the vegetable materials present. Instead of passing over the gas frame the cloth may be placed in an oven or run over drying cylinders heated to the temperature required for carbonizing.

The Sirtain process consists in passing the cloth through a chamber filled with hydrochloric acid gas, then through a hot air chamber to carbonize the vegetable materials. The cloth is then exposed to ammonia vapor in a third chamber, which neutralizes the acid remaining in the wool. The crushing of the burs and vegetable substances involves the same difficulties as are encountered when liquid acids are used.

Carbonizing with Mineral Salts

This process is similar to the preceding: 1. Immersion in the solution of mineral salts. 2. Hydro-extracted. 3. Dried and carbonized. 4. Rinsed. While acids cause the vegetable materials to become black and then brown, the mineral salts hardly change the shade of these materials. The hardest particles of the vegetable materials are the first to be crushed. As most of these salts begin to decompose at 210° F., the carbonizing process is carried on at a temperature not higher than 195° F., which serves also to prevent the wool from becoming yellow. This process of carbonizing does not cause any difficulty in fulling. It should be borne in mind, however, that if the goods are allowed to regain the natural amount of moisture after coming from the carbonizing liquor it will be impossible to crush the vegetable substances, as the salts crystallize in the interior of the burs, straw, etc. After carbonizing and before rinsing, the cloth is run dry for an hour or two in a sort of fulling mill in order to remove the vegetable dust.

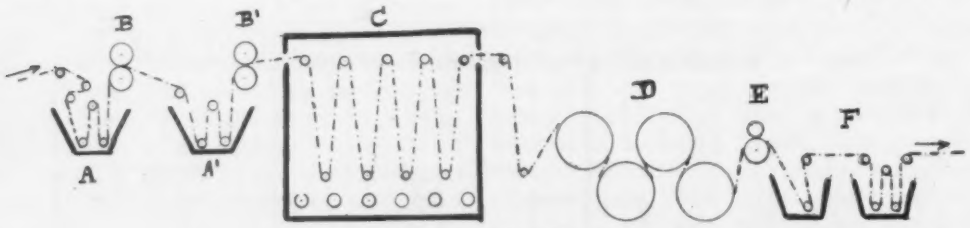


FIG. 10. A CONTINUOUS CARBONIZING MACHINE

The salts most in favor for this process are:

1. Chloride of aluminum; a colorless liquid standing at 20° Be. It is used at 6° to 7° Be. This is the most important of the four salts.

2. Chloride of zinc. A yellowish, syrupy liquid standing at 40° to 50° Be. and used at 8° to 9° Be. Solutions of this salt cause difficulty by reason of the formation of oxide of zinc, which is removed by the addition of a small quantity of hydrochloric acid.

3. Chloride of magnesium. A crystallized salt, very hygroscopic, standing at 7° to 10° Be. Its use cannot be strongly recommended.

4. Acid phosphate of lime. This is found in two forms, in grayish white lumps and in a syrupy liquid. It is used at 6° to 8° Be. and is least valuable of the four salts for this work.

Continuous Carbonizing Machines

Fig. 9 shows a continuous mercerizing machine in which the cloth is carbonized by radiated heat. The piece passes through the solution in the tank, A, where it is immersed several times by means of rollers as shown. It then passes between the heavy press rolls, B, which remove the excess of acid liquor. The cloth is then carried to the chamber, C, where it is passed successively over rolls at the top and bottom of the machine. After coming from the carbonizing machine the cloth is passed between press rolls to crush the vegetable material, which is then removed by rinsing. Drying cylinders are sometimes used instead of the machine with the carbonizing chamber, C.

Fig. 10 shows a continuous carbonizing machine in which both the hot chamber and the drying cylinders are used. The cloth passes through the acid solutions in the tanks, A and A', and between the press rollers, B and B', after which it is carried through the drying chamber, C, as shown. The vegetable material is next carbonized on the steam cylinders, D, after which the cloth passes through the crushing rollers, E, and then through rinsing baths in the two tanks, F, the first of which contains a solution of soda.

A HAND BOOK OF WEAVES

By G. H. OELSNER, Director of the Weaving School at Werdau.

This Series began in July, 1911

Translated and Revised by Samuel S. Dale

A recess riser must be inserted next to each cord sinker adjoining the recess, as shown at Fig. 1504.

Corded stripes can be woven without recess threads by making each pick float alternately on the back and interlace with the warp of the raised cord. In one stripe it floats on the back and in the next stripe it is woven on the face; for the next pick the order is reversed. Very pronounced corded patterns can be obtained in this way, as shown by the cross section, Fig. 1505, for which the weave is shown at Fig. 1506. Each stripe is made with 8 threads woven plain on alternate picks.

FIG. 1505

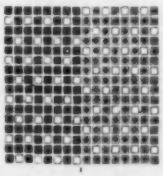


FIG. 1506

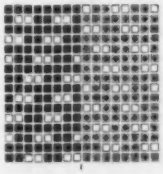


FIG. 1507

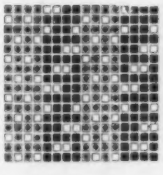


FIG. 1508

Fig. 1507 shows a similar pattern with a 2 up 2 down twill substituted for the plain weave. The twill is reversed at each stripe. Fig. 1508 shows a corded pattern, each stripe composed of 4 threads, a 2 up 2 down twill alternating with a plain weave.

Stuffing threads are introduced when a very full round cord is wanted. In Fig. 1509 the cord is made with 6 ends woven plain and 4 stuffing ends. The latter are indicated

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by dotted squares and marked with a line at the top of the draft. The recess is formed by 2 threads.

tern is the same as Fig. 1509. A similar pattern is shown at Fig. 1511, in which a wide 4-leaf basket cord alternates with a narrow

FIG. 1509

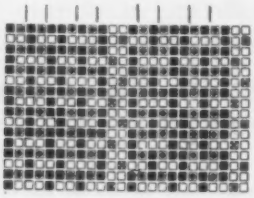


FIG. 1510

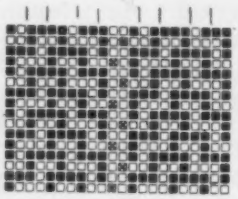
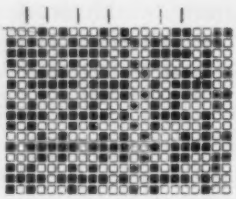


FIG. 1511



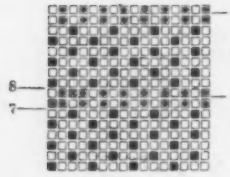


FIG. 1512

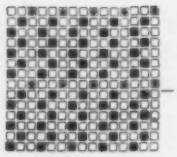


FIG. 1513

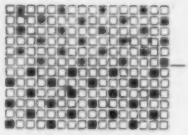


FIG 1514

FIG. 1515

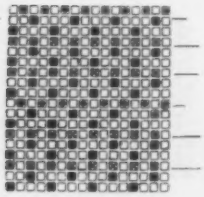


FIG. 1516

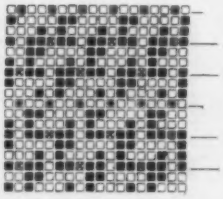
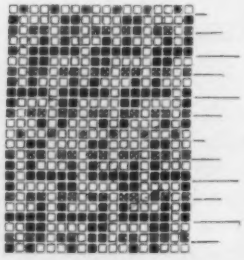


FIG. 1517



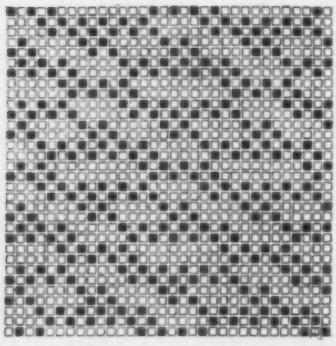


FIG. 1518

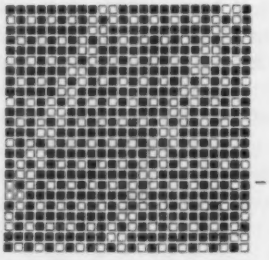


FIG. 1519

The durability of a corded cloth is increased by interlacing the stuffing threads with the picks floating on the back. In Fig. 1510 the stuffing threads and floating picks are woven plain. In other respects the pattwill cord, the two being separated by 2 recess threads. The back of the cord is woven plain.

Stitching the stuffing thread to the back or floating picks makes the cord less pro-

nounced and results in two textures, one above the other.

Corded patterns with stuffing threads can be made without recess threads, as shown in Figs. 1506, 1507 and 1508, if desired.

CROSS CORDS

These are usually made by letting every second or third warp thread float on the back for a number of picks while the other warp threads are woven with a plain twill or similar weave. All the warp threads floating on the back are raised above the next one or two picks, thus producing a cross cord. This effect is made still more pronounced if the back warp threads are woven from a separate beam under a great tension than that on the face threads.

In Fig. 1512, threads 2, 4, 6, 8, etc., float on the back for 6 picks, and then rise above 2 recess picks. The other threads are woven plain for the first 6 picks. The face warp can be interlaced with the recess picks, as shown by the crosses, if desired.

In Fig. 1513 6 picks are woven plain alternate with 1 recess pick. Every third warp thread floats back of the cord.

The recess is made finer by dispensing with recess threads and letting each warp thread alternately float back of the cord and interlace the filling, as shown at Fig. 1514.

The raised parts of filling cords are made fuller and higher by introducing stuffing picks between back and face, as shown at Fig. 1515.

The durability of the cloth is increased by interlacing the back warp with the stuffing picks. An example is shown at Fig. 1516, in which the back warp and stuffing picks are woven plain. The face warp is woven with a 2 up 2 down twill for 6 picks, followed by one recess pick.

A very pronounced filling cord can be obtained on thick fabrics by using both stitched and unstitched stuffing picks, as shown at Fig. 1517; in other respects this weave is the same as at Fig. 1516.

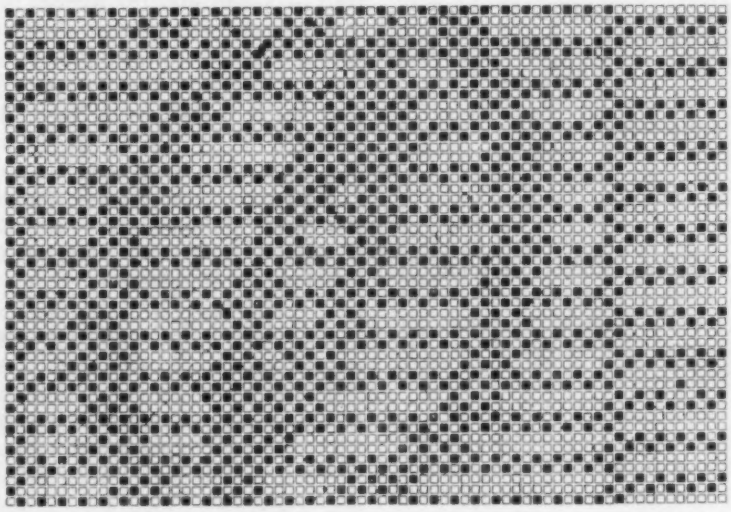


FIG. 1520

DIAGONAL CORDS

In these effects the back or floating picks do not all float under the same face threads and intersect the same recess threads, but are arranged in twill order as shown at Fig. 1519.

The raised effects obtained with corded weaves can be arranged to produce figured patterns, two examples being given at Figs. 1518 and 1520; in which risers are white squares; sinkers, black squares. The oval design in Fig. 1520 is offset one-half and inclined in the opposite direction in every other stripe.

WAREHOUSES FOR RAW COTTON AND COTTON GOODS

By Our Regular English Correspondent

All schemes for the warehousing of cotton upon a large scale in the Southern States meet with incredulity in England. There have been so many similar plans in the past and so little has resulted from them that scepticism over the prospect of carrying new ones to success is widespread. The spirit of disbelief is shared alike by those who think that the provision of larger storage facilities would, upon the whole, work out to the general good of all parties; and by those others who see nothing in such schemes but attempts to subvert the established order of trading and to do violence to their own private interests. Among a body so large as that connected with the buying and selling, financing and manufacturing of American cotton in England every shade of opinion may be found, but incredulity is the dominant one.

There is not the slightest reason to think that the Liverpool merchants who import raw cotton view with any particular favor the intrusion of a new complication into the trade. On the other hand it cannot be said that they think a large warehousing scheme likely to succeed far enough to make an important difference to them. They have a faith in the ultimate efficacy of the laws of supply and demand, which encourages them to think lightly of the chances of Trust domination. Importers and spinners do not necessarily think alike upon questions of the marketing of raw material and the spinner does not inevitably disfavor storage. The fear that prices may be raised by the holding back of cotton is accompanied in his mind by the knowledge that cotton does not always become dearer for keeping. The remarks of the Manchester Guardian upon the Tompkins scheme outlined in the April Textile World Record are indicative at least of an open mind:

> Authoritative classification at the beginning seems to tend to simplification in trading, and we can believe that Lancashire spinners will watch the development of the scheme with interest and certainly without animosity.

There are at least some bankers, heavily interested in the finance of imported cotton, who cordially approve of the building of Southern warehouses. One of the most eminent, whose opinion has been obtained for the purposes of this article, believes that warehousing would help to smooth out fluctuations of price and to distribute the business more equally over the year. The desirability of spreading the transactions over more months has been forced on him by such events as those of last season when the bulk of the transactions were carried through in two months, for the reason that growers saw an immediately satisfactory price. It may be added that the banker is in favor of more warehouses also for other produce than cotton and in other countries than the United States. Arrangements that would give the foreign grower more facilities for raising money upon his goods at home are not displeasing to English bankers at large. The risk that the process might be carried too far is minimized in two ways. Warehousing costs money and cannot be indefinitely prolonged; and both warehouse rent and interest charges are certainly higher in America than in England, so that the produce would still tend to come here.

Those who maintain that warehousing would be a good thing in its way are careful to add that it is far from a panacea. It is not believed that American storage facilities are the things which need improving most. The culture is the thing and cotton men in Liverpool agree that what is most wanted is improvement in farming. They urge that to farm an acre of unfertilized land yielding a poor crop costs almost as much as the farming of an acre of well fertilized soil and they look to the time when Texas will have discovered what is already known to Georgia and the older-settled States. They point out that in well farmed land an adverse season makes comparatively little difference to the intrinsic quality of the crop, whereas in untilled soil the quality as well as the quantity are absolutely at the mercy of the weather. Farming methods are regarded as the real root of the matter and warehouse reform is viewed as a possible means of bet-

tering the condition of the grower, thus stimulating him to adopt scientific ways and of easing the tension upon credit by protracting the marketing of the crop.

COTTON STORAGE IN ENGLAND

It is not clear that English practice sheds any new light upon the proposal to issue certificates stating fully and accurately every factor relating to the bale of cotton deposited in the store. A statement may nevertheless be given of what the English practice is. In readiness for the beginning of the season the importing merchants send out their men to the cotton States to buy on their behalf. The seller is paid and the cotton is shipped, and at the same time a bill is drawn for the amount. The bill may be drawn by the American branch-house upon its own Liverpool head-office. By far the greatest part of the bills are drawn upon Liverpool or Manchester banks and are sent with documents attached, against payment of the bill. The bill of lading is detached from the bill on its presentation for acceptance and the amount has to be paid when the cotton arrives; or otherwise the importer has to obtain facilities for warehousing the bales in the name of the acceptors of his draft. The cotton is very frequently warehoused and this act calls into being the warehouse receipt.

In England, warehouse receipts are of two kinds. There are simple acknowledgments, beginning with the words: "We hold at your disposal" (such and such bales shipped by such a steamer). There are also warrants which begin "Warrant for—bales." The simple receipt is not an evidence of title upon which one can borrow and largely for that reason it is preferred by bankers. The warrant occupies a different status and warrants can only be issued legally by those who have obtained special powers from Parliament. The warrant is a stamped document and is technically a "fully negotiable" instrument. The bona fide holder of a duly authorized warrant is immune from any defects of title. Supposing, for example, that A lost a cotton warrant and that B found it and sold it to C, than A could not claim upon C for its value, unless he could show that C's purchase was not made in good faith. Warrants are thus dangerous things to lose and substantially no use whatever is made of them by the bankers who advance money upon cotton. From the banker's point of view the ordinary warehouse receipt is safer and it is manifestly more convenient.

The banker retains the warehouse receipt stating that so many bales of cotton, shipped by such a steamer are at his disposal in a certain warehouse under the care of the warehouse keeper of the company. Against this receipt he issues delivery orders to the warehous keeper liberating the whole or a part of the consignment against payment made to him by the importer. One receipt may cover one or two thousand bales and were a warrant used it would be necessary to have an endorsement of every delivery, with obvious difficulties and dangers in the handling of the paper. In practice, the banker would probably have to leave the warrant with the public warehouse-keeper and to issue delivery orders against it as he now does against the simple and innocuous receipt. The circumstances being understood, the preference for a non-negotiable piece of paper is readily comprehended.

HEDGING THE RISK

Of course the transactions in respect of the actual cotton bought form only one side of the deal. In buying cotton on the plantations the importer is taking a serious risk of a fall in the market before the cotton can arrive in Liverpool. He is buying by the thousand bales and if he is doing a legitimate business he is bound to provide himself with security against mishaps. Accordingly, when buying real cotton he sells upon the Liverpool Exchange an equivalent quantity of futures cotton due in the same months as those in which his shipment is due to arrive. Week by week he and the buyer of the futures adjust in cash the difference in value shown by the weekly settlement prices, doing so through the Clearing House of the Liverpool Cotton Association. As his bales come to hand he buys back the equivalent quantity of his futures contract. If, in the

meantime, cotton has fallen in value he is a loser on his shipment because his bales have to be sold for less than he gave; but he is a gainer upon his future contract because he is able to buy back for less than the price at which he sold. In a properly managed "hedge" the loss and the gain exactly counteract each other and enable the importer to carry on in all conditions of the market. The details of this operation are not actually a digression from the subject of warehouses, because it is upon the understanding that their customers are covering their risks that bankers consent to advance funds upon a security which may be worth materially less than the invoice value at the time of the arrival of the bales.

LIVERPOOL WAREHOUSES

The warehouses in which cotton is stored in Liverpool are for the most part old-fashioned buildings constructed in accordance with the requirements of the fire insurance offices. They are brick-built and range up to eight stories in height. The blocks are divided into somewhat narrow partitions running from ground to roof, with as few windows or inlets as possible. They stand in streets back from the river and the bales are brought from the quays on lorries. Each compartment has an iron delivery door and the bales are hoisted by a simple rope sling. The premises are owned or occupied by firms and companies that undertake the storage of all classes of goods and most of them have accommodation in many separate buildings. The largest warehouse company in Liverpool controls some 450 different warehouses and sheds. Transport and warehousing are the chief, almost the only, industry. The port handles 800,000 tons of raw cotton yearly and has sometimes as many as 1,500,000 bales of cotton in storage.

WAREHOUSING COTTON GOODS ABROAD

It has been suggested that the natural corollary to more raw cotton warehouses in the South is the provision of a chain of warehouses abroad for the storage of American manufactured cotton goods. There are, however, certain essential differences to bear in mind. Cotton is a raw material which naturally ripens at approximately one time. Enough for twelve months or more comes into being and demands to be taken care of at once. Goods are manufactured all round the year and the stock maintained in any one consuming locality bears some sort of relation to the immediate needs. Notoriously, the Southern States are without warehouses or sheds enough to protect the ginned cotton from the weather—to say nothing of the facilitation of loans.

There is no evidence, apart from occasional exceptions in countries like Persia, that the chief importing countries are without enough public warehouses for the protection of manufactured cotton goods. The outlying and barbarous places which are devoid of accommodation are not the ones with which a large business is likely, or where the erection of warehouses presents a very favorable outlet for capital. The two propositions are thus upon different footings and it seems probable that there is some misapprehension as to the use and purposes of warehouses for the cotton and other manufactures that are imported into Asiatic countries. The warehouse plays a necessary, but only a minor part. The great bulk of the English business in manufactured cottons for the Eastern markets is done upon indent. Somebody, acting as importer, buys the goods upon sample and ordinarily by use of the cable. The importer in the East is usually a European, but not necessarily an English, house, and the importer buys ordinarily to cover a sale made normally to a native house. The order is seldom given to the mill direct, but goes to an exporter or shipper who may incidentally be a convertor, who sees the woven goods through their finishing stages. In the course of time the goods are packed and shipped by the exporter. When the shipping documents have been delivered, a bill is drawn upon the indentor for the value of the invoice. This bill with the documents attached is passed to the exporter's bank and is forwarded abroad to the agents of the bank, who present the bill to the payer for acceptance. The goods are usually landed and put into warehouses by

the bank and the acceptor takes delivery by piecemeal, paying cash for the packages as he gets them; or he may retire the bill under discount and take possession immediately instead of waiting until maturity.

The documents that are attached to the bill include the invoice, the bill of lading, the marine insurance policy and a letter of hypothecation. The letter is in some such terms as these:

> We have negotiated through your London office a bill drawn by us on ..... for £....., and as collateral security, have delivered with the said bill shipping documents for the following goods: Invoice for ..... packages amounting to £..... Policy of insurance (all risks) for £..... payable at ..... Bill of lading for ..... packages marked ..... per steamer ....., the Freight on which, amounting to £..... is paid by us.
>
> These documents to be given up on payment of the bill.
>
> In case of dishonor we authorize the sale of these goods according to your discretion, such sale being for our account, at our sale risk or subject to the usual charges for commission and all incidental expenses.

Delivery against payment is the normal course, but delivery against acceptance is not unknown although it is not encouraged. In exceptional cases goods are sent out on consignment for sale at the shipper's risk. For the sufficient reason that this almost invariably ends in a loss the general consignment business is small. An exception may be noted in the case of Shanghai. About half the cottons sold in that port are sold at the weekly auctions which are held by four firms. The sales have been carried on for about forty years, through bad times and good, without intermission except during the height of the worst political and financial disturbances. The goods are knocked down without reserve and although there must have been heavy temporary losses the auction merchants have unquestionably made large fortunes out of the trade. The goods have to be bought nine months or more beforehand and the merchant faces the risks of falls in silver as well as of falls in raw cotton. The practice of unloading weekly quantities upon an already overloaded market provokes bitter cries from the smaller indentors, but it keeps interest in trade alive and it perpetuates the sale of goods sold under particular marks or chops. In Shanghai the warehoused stock of cotton piece goods from all countries sometimes exceeds one year's consumption and it would be of course impossible for traders to carry such quantities without the assistance of banks and public warehouses.

In India, Malaysia, Japan and China there are warehouses or go-downs in every trading port, owned by the banks, dock companies or private individuals, in which goods are stored in the charge of the bank until required. Cottons are the chief article of trade and accordingly they predominate in quantity. Every kind of perishable goods is put into go-downs and this without respect of their origin. Political divisions matter very little to importers who can only make a satisfactory turnover by dealing in any and every kind of article that the market will take.

German merchants who want to deal in cottons have to deal in Lancashire goods just as English merchants who want to trade in cheap hardware have to offer German makes. In point of fact, the German houses in the China trade sell immense quantities of Manchester goods and it is probable that the Germans in Japan import more British woolens than do the English houses in Japan. It is not want of warehousing or financial facilities that keeps back Continental cottons in the East. The question is altogether one of price and style, a fact which may be illustrated by a letter recently sent to a Manchester newspaper by a Manchester salesman from Hongkong:

> I would like to draw the attention of manufacturers of the undermentioned goods to the fact that these good paying lines are gradually being deviated to the Continent through the high rates asked by them during the past few years. I know many mills still keep going on the styles enumerated, but that is because our Continental friends have not yet got a sufficient number of looms running:
>
> Plain poplins .....Italy
> Khaki drills .....Italy
> Blankets .....Italy, Belgium and Germany
> Vestings .....Italy
> Herringbones .....Holland
> Trouserings ....Austria, Belgium, Germany, Italy
> Umbrella cloths .....Italy, Bohemia
>
> Prints in narrow widths in China are now done by the Russians to such an extent and with such a wonderful organization that ere long Manchester will have to take a back seat.

THE MANUFACTURE OF ELASTIC FABRICS

BY SAMUEL BROWN

(Continued from May.)

Another type of double shuttle web is known as the "overshot." This was introduced about 25 years ago and was designed as a substitute for the more expensive kind of silk jacquard webs, which at that time were very popular and which it has now almost entirely supplanted.

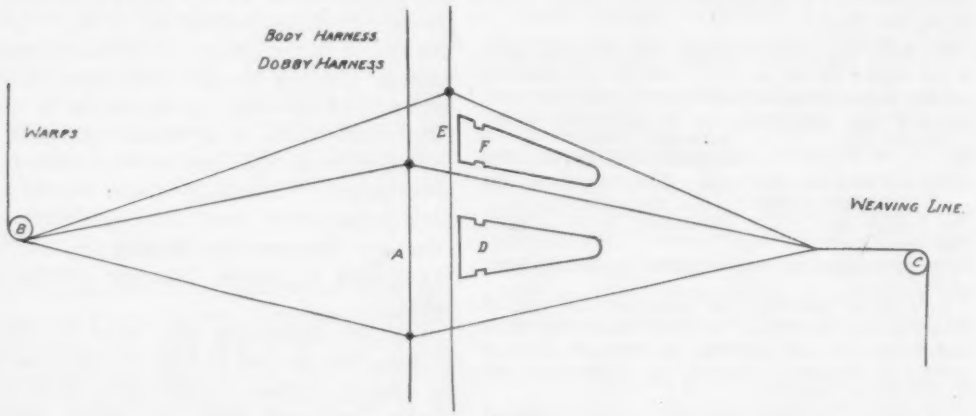


FIG. 82

Before the introduction of the overshot method, it was customary to use a slow running "rise and fall" lathe when making a silk figure, putting in one peck of silk filling to every two body picks; so that the quantity of web produced was only about one-half what is now possible. The greatest economy brought about was in the silk used for the figure, which at that time passed from edge to edge of the goods at every pick made, being buried underneath the face when the figure did not appear. In the overshot method, it is bound in the weave at the edge or border of the figure, none being buried out of sight. In the overshot

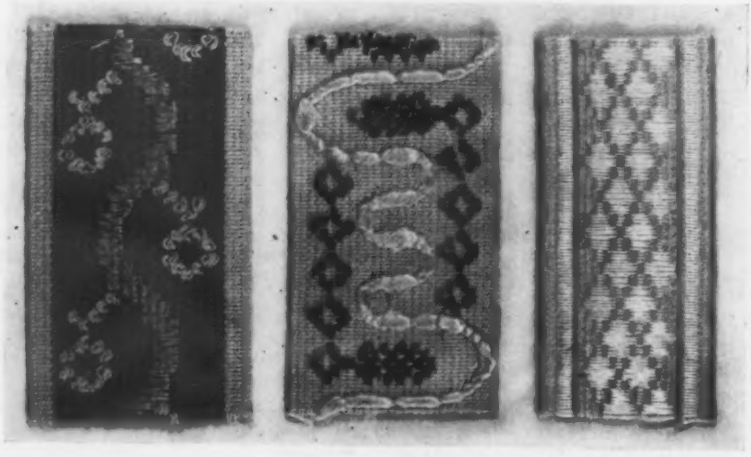


FIG. 84 FIG. 85 FIG. 87

the ground shuttle runs all the time and the figure shuttle runs with every alternating pick. In the overshot weaving, the main body of the goods is made similar in every

respect to the single shuttle web, and it may embrace all the variety of weaves as plain, twill and fancy, that are common to single shuttle weaving. Arrangements are made, however, for the production of an auxiliary shed, by a movement which strains certain threads above the main shed, while these are open, to pass the extra shuttle under them and thus bind in the figure filling. The lower part of the lathe has straight shuttles, the same in every respect as a single shuttle, while the upper bank must be tipped downwards so as to conform to the formation of the auxiliary shed it is designed to pass through. This will be better seen in Fig. 82, which shows the main shed, A, lined straight from the back roll, B, to the breast-piece, C, and with the straight shuttles, D, passing through it, also the auxiliary shed, E, with the pitched shuttle, F, passing through this.

The common method of operation is to use all or part of the binder threads for figure purposes. The binder warp is usually weighted very light and so the individual threads will easily stand all necessary strain required to make the auxiliary shed. Numerous methods have from time to time been employed in carrying out this operation, but the Crompton & Knowles "overshot dobby" is now generally used. This machine is provided with two horizontal draw knives, operating any or all of the 30 hooks on alternating picks, and is so arranged that the connected warp thread may be lifted on either or both picks to the height of the body shed, or to the additional height of the auxiliary shed. Fig. 8 shows the draft for a simple overshot web, Fig. 84, made on eleven hooks, which are operated from one knife of such a machine drawing in unison with the binder harness, while the other knife is operating 14 hooks with a warp stitch figure, working in unison with the rubber harness on the heavy pick.

It will be noticed that in the overshot design, both sides of the figure do not work in unison, but follow one pick after the other. This is so arranged, in order that the binder may come up at the right pick to bind the silk down on the goods and so avoid any irregular or ragged appearance at the border of the figure. In making the silk overshot design, care must be taken not to have the floats too long, or it will give the goods a rough, coarse appearance. Should the design call for a long span over a number of cords, it will be necessary to bind them at intervals, and at each succeeding pick to break the order of the binding as may seem advisable. The stitch figure shown at the sides of the overshot figure

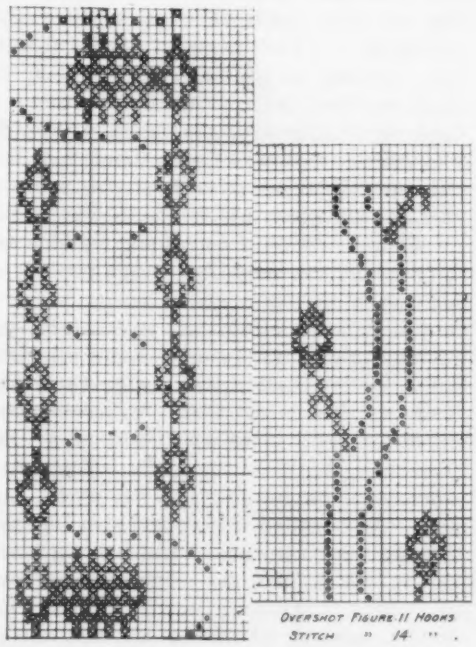


FIG. 86 FIG. 83

must be pegged on the dobby chain so as to operate on the other knife, which works on the heavy, or rubber pick. Fig. 85 is another effective combination of a silk warp figure, having a heavy thread of gimp trailing through it. This thread is worked by the overshot shuttle. The draft is shown at Fig. 86.

Another type of overshot is known as matelasse. In this the silk filling extends from side to side of the web, as in the old form of jacquard and is bound down at different points and in different forms or patterns.

Fig. 87 shows a web in which the silk overshot is made by the operation of the gut working on the heavy pick and not by the binder and on the light pick. This is necessary because of the intersecting cords of face, which hide the silk at different points and which can be operated only when they are all up together, which is on the heavy left. The draft is shown at Fig. 88. These face threads must first be put in on the regular harness, as shown at A, Fig. 82, and then each individual thread is passed through a slip leash, which is operated from the dobby. This slip leash allows for the free working of these face threads in the main harness, but can also raise them to the height of the additional shed, so that the silk shuttle may pass under them.

Lappet weaving is a form of overshot occasionally used, which allows for the introduction of several colors side by side, but this method has never been very popular on account of its limitation of design, which is confined almost exclusively to straight lines and zigzag effects. Instead of the silk being put in by the shuttle, it is really stitched in. A sliding bar is used on the lathe, placed above the goods, into which is fixed a series of needles at regular intervals. The silk or other material to be used for figure purposes is threaded through these needles. This figuring material is run from grooved spools, which are so weighted that they feed easily through the needles at every forward movement of the lathe. The needles dip in the shed and the silk is caught under the passing shuttle and so stitched in the goods with the regular ground filling. At the end of the lathe is fixed a ratchet driven chain, into which may be screwed metal pegs of different lengths, arranged to make a given design. This chain, with pegs of variable length govern the travel of the sliding bar, into which the needles are fixed and so stitch in the different threads backward and forward across the goods.

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George III of England secured a few merinos by way of a present, and eight of them, bought and carried to Australia by Captain John Macarthur, are the forefathers of the vast Australian flocks of the day.

ENGLISH NOTES

By Our Regular Correspondent

The change that has been made in the consular classification of goods exported to America does not facilitate matters for manufacturers who wish to see at a glance what the movement has been in the line in which they are directly interested. The form of the returns has been recast to correspond with the tariff items and as exact comparison with the earlier records is thus precluded, the British tabulation is temporarily the more instructive. An abstract from British export returns for the first four months of the year follows:

	Four months to April 30	
	1913	1914
Cotton yarn .....lb.	$2,255,000	$2,221,200
Cotton piece good (all kinds) .....yd.	15,590,000	23,495,300
Worsted yarn .....lb.	18,300	562,700
Woolen tissues .....yd.	785,800	2,745,600
Worsted tissues and stuffs .....yd.	3,061,800	12,094,600
Carpets .....sq. yd.	44,100	164,600
Spun silk yarn .....lb.	229,137	269,102
All-silk broadstuffs .....yd.	92,203	97,961
Mixed silk broadstuffs ..yd.	162,109	523,566
Jute yarn .....lb.	110,800	886,500
Jute manufactures .....yd.	30,588,700	24,073,800
Linen yarn .....lb.	903,900	993,700
Linen manufactures .....yd.	47,034,500	46,659,300
Apparel (not waterproofed) .....value	£40,583	£70,092

The British returns, it may be explained, are constructed upon a plan that has been arrived at by agreement between the Chambers of Commerce and the Government. The classes are subdivided from time to time in response to changes in the nature of trade and, as occasion demands, new countries of origin or of destination are shown separately in the lists. While not exhaustive of all the textiles shipped to America the abstract includes the main part of them. It will be seen that there are decreases under the heads of cotton yarn, jute goods and linen goods and increases in all other lines. The extra 8 million yards of cotton goods is made up of 5 extra millions of dyed cottons and towards 3 millions of bleached, with an extra half million of printed; a fall in the quantity of unbleached accounts for the apparent discrepancy. As yet, tops destined for America have no separate place in the official tables. The worsted yarn represents some $356,000.

the woolen cloth some $2,245,000 and the worsteds and stuffs roundly $3,945,000. The average value of the worsted line being only some 32 cents a yard, it follows that linings and dress goods form a heavy proportion of the total. It can be added, however, that makers of fine fancy worsteds are not at all disappointed with their sales. The woolens of an average 76 cents a yard are a trifle above the 72 cents which is the average for all markets. The jute spinning trade has been flat enough to make the large improvement in American takings acceptable to Dundee. Belfast expected much greater things from the tariff revision than those that have yet appeared in the returns. The nature of the apparel in point is not more particularly described than in the list above. It does not include any rubber coats or raincoats and may be largely made up of suits to private order. Wholesale clothiers from this country have investigated the American market with a view to selling direct to the stores in large cities, but no definite news of the result has been received.

* * *

The suggestion is offered by a reader that with little trouble the manufacturers of artificial silk might popularize their product under a new name. He makes them a present of the word "Klis" ("silk," inverted), a name that has the merit of brevity. It can be allowed offhand that the term is a great deal better than any of the three lately submitted by a learned gentleman to the Silk Association of Great Britain. "Blastesis," although it is the good Greek name for vegetation, is hardly the name to give consumers a better idea of the goods. "Phytosericon," or plant silk, might have been more apt had the chemists not provided the five-syllabled "lustracellulose" already. The third attempt, "sericine," is not especially handy in itself and it is a great deal too closely related to "sericin," the scientific name for natural silk gum. "Klis"—a combination of letters devoid of all preexisting associations—has at least two of the qualifications of a good trade mark. But where is the evidence that artificial silk makers want any other name than the one they already use; or that they would care to combine to give a common name to their product? Probably each would rather make a name for his own.

The yarn is made by companies whose principal business is spinning and it is woven chiefly by manufacturers of mixed goods and delivered by them to wholesalers. Neither the weaving manufacturers nor the merchants have time to use the long word "artificial" and almost invariably they talk of "art silk yarn" or "art silk stripes," and so do the members of the old-established silk trade. The habit of contraction is ineradicable. It is seen in "gent's" hose, in "spun" for spun silk waste, in "organ" for organzin, in "screws" for corkscrew twills and in "gabs" for gabardines. Custom is stronger than law and nobody's Act of Parliament can make man mouth the full art-i-fici-al when three letters of the name suffice. Between manufacturer and merchant the contracted word is incapable of misleading, but the courts have put down the use of ambiguous names for this commodity as between retailer and consumer. The series of prosecutions brought against drapers have made them cautious. They still produce mercerized cotton and artificial silk scarves when one asks for silk goods, but their labels are non-committal and the shop-assistants distinguish between silk that is "real" and silky looking goods that are not real but cheap.

* * *

The results ascertained by the professors who have investigated the means of testing woolen and union fabrics for indigo have been laid before the British Government for the information of those of its departments which buy blue cloth. The results, which have been already given, were inconclusive except in respect of the use of pyridine as an agent for the extraction of indigo from the fabric. The goods made for the uniformed services are dyed in part by the cloth manufacturers and also by commission dyers, who have been very much beaten down in price. There is thus an incentive to the use of any cheaper dyewares which, by mixture with indigo, can be made to stand the official test and the action of the

Textile Institute amounts to assistance in discovering with what dyestuffs uniform cloth has been dyed. Of course when cloth is not sold as indigo dyers have a right to use such color as they like.

Dislike of dictation as to what they shall or shall not use in attaining a given result is ingrained in British manufacturers. Instances are known of the refusal of orders for yarn by men who declined to be bound to use only specified materials and who stoutly maintained their right to use any and every means at their discretion, subject only to producing a good match to the sample. Merchants who have endeavored to specify every particular as to material, counts, picks and so forth have been very impolitely told to make their cloths themselves. The theory is that it is for the supplier to manage his business and for the customer to manage his own. Brusqueness is the outcome of attempted interferences beyond such as are usual and recognized in the trade. In making goods to a contract strength the manufacturer admits his obligation to provide cloth that will stand the test, but not to irritating restrictions midway.

In manufacturing woolens for foreign armies restrictions on the use of waste, skin wool and other alternatives to fleece are often laid down and they may sometimes be complied with. It is not, however, the universal experience that those who most readily agree to restrictions turn out the articles that behave best under test. Striking exceptions to the contrary could be quoted. The materials used to make a particular woolen army cloth of course vary with the price and other requirements. Such orders as were placed in England in 1905-06 for Japan set up a great demand for strong crossbred wool, which in some cases doubtless did carry a proportion of waste. Orders like that for 1,100,000 yards of khaki and gray mixture cloth, received from Turkey by one Dewsbury and one Colne Valley mill, will be filled probably by using New Zealand greasy locks and pieces, with or without a proportion of stocking or shorter waste.

* * *

An obscure trade union in Bradford has become responsible for some of the most offensive imaginable imputations upon the character of the weaving overlookers of that city; and for an absurd outcry against mill morals. The union, which has a small membership of Bradford weavers, in the first place offended the local Overlookers' Society by bringing general charges of harshness of conduct against the local overseers. As at the same time every mill was in want of weavers and any competent weaver could get a dozen jobs, the accusation amounted to an improbability at the very least, even were the high character of the men unknown. While this sore rested unhealed the union had the impulse to beseech the Society to cooperate with itself in putting down lewd talk and obscene suggestion in the mill. The overseers preferred their own method of preserving order, but their neglect to take up this gratuitous offer of help has been carefully turned into a reproach upon them. A week's "purity campaign" fell due and preachers from all parts of the country joined in a hue and cry against both mills and men, and in course of it displayed an ignorance of industrial conditions almost more grotesque than can be believed. For example, nobody who has been in a weaving shed is likely to draw parallels between it and a university smoke-room, as did one reverend authority. There is, however, the risk that some of the mud that has been thrown will stick. Proof that the mill is one degree worse than any other single place attended by human beings does not seem even to have been attempted. The truth is that the moral atmosphere of the mills never did offer any serious ground for objection and the opinion of all who are acquainted with the facts is that there is less room to find fault than there ever was.

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Over a quarter of a million persons in Germany, over 200,000 in France, about 163,000 in the United States, 150,000 in Russia, 80,000 in Italy, 53,000 in Austria, 35,000 or so in Belgium, 8,000 in Holland, 3,000 in India, and about 3,000 more employed in the woolen mills of Victoria and New Zealand, give basis enough for estimating that the world's total does not fall far short of 1,500,000 workers.

Questions and Answers

Under this head we undertake to answer, free of charge, to the best of our ability, questions pertaining to textile matters received from any regular subscriber to the TEXTILE WORLD RECORD. Questions should be stated as briefly and concisely as possible. Inquiries pertaining to textile processes, machinery, improvements, methods of management, the markets, etc., are especially invited, as well as any legitimate discussion on the views expressed. All inquiries must be accompanied by the name of the person inquiring, not for publication, but as an evidence of good faith.

If the question is not of general interest to textile readers and involves expensive investigation, a charge covering the cost may be made, of which the inquirer will be advised before any expense is incurred.

PARTI-COLORED YARN

Editor Textile World Record:

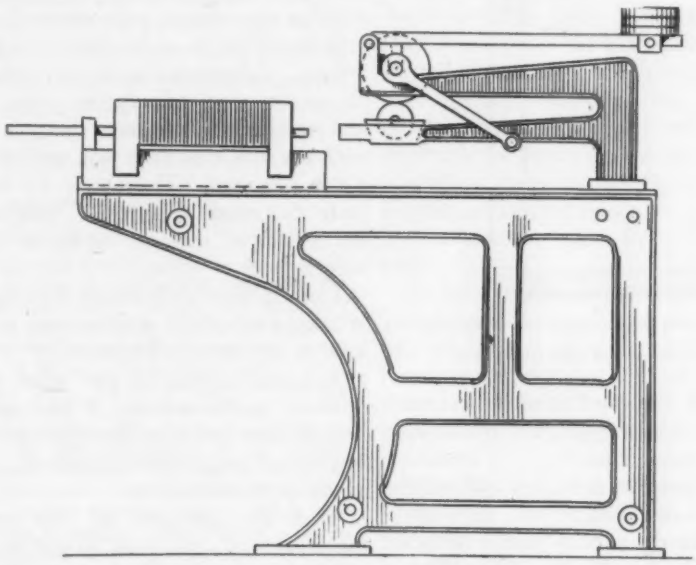
We enclose sample of yarn dyed one section of green, one of brown, and the remaining section left the native white. There are other combinations such as red, green and white, etc. Can you give us the best process for getting two colors on one skein with sharp lines where they join?

Humphrey (2234).

The small sample submitted gives every indication of having been printed on a drum. There are several kinds of machines adapted to the printing of woolen yarns, and which can be operated so as to print the yarn with one color or with several colors, and in such a manner that the termination of each printed color will be sharp and distinct without bleeding into the adjacent color or unprinted white yarn.

Two common types of machines are employed: the modernized Whytock yarn printing warp drum such as is used for tapestry carpet yarns, with other less important warp printing machines; the machines especially constructed for printing skeins, the latter being what this correspondent evidently has in mind.

The skeins are stretched over a sliding frame that carries two adjustable rollers, the rollers so arranged so as to revolve, enabling the printer to bring another portion of the skein between the color roller. In a color box containing the printing paste, is placed so as to revolve freely a lap roller to lift the color and press it against the threads, pressure being imparted by a corre-

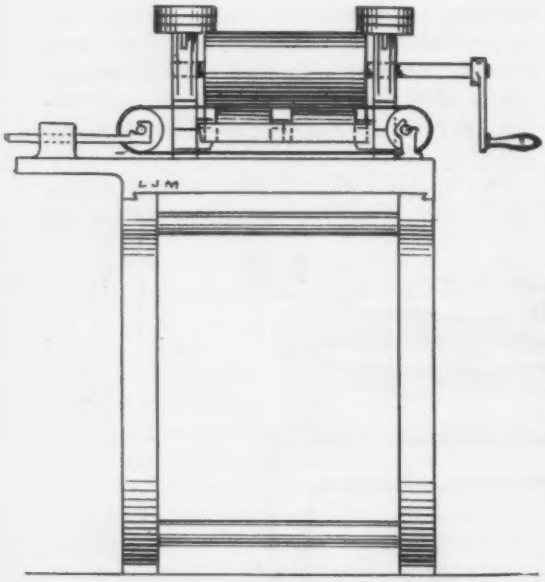


SIDE VIEW OF MACHINE FOR PRINTING YARN

sponding roller mounted over the bottom lap roller. By pushing the sliding frame away from the workman and aided by the power of the crank, good yarn prints are to be obtained.

If two or more colors are to be printed at one time, the color box is divided into compartments, into each of which is placed its corresponding lap roller.

The accompanying sketches will make the above description clear.



FRONT VIEW OF MACHINE FOR PRINTING YARN

Printing pastes for such colors as are shown on the sample of yarn are made up with:

2 to 20 parts of an acid dyestuff such as Azo Rubine A, Brilliant Cochineal 2 R, Cyanole Green B, Orange G G, Azo Wool Violet 7 R, or combinations of the above.
30 to 40 parts hot water.
20 parts gum arabic 1 : 1 and
20 parts dextrine.

Cook thoroughly, cool, and, when cold, stir in:

1½ parts oxalic acid, dissolved in
15 parts hot water.

The above quantities are by weight.

Before printing, the yarn should be well scoured, rinsed and dried. After printing, the color must be fixed by steaming in a steam chest for 1/2 to 1 hour without pressure, afterwards well washed and dried. Wash only in cold water. The use of warm water tends to cause a slight bleeding of even the best printed and steamed colors. After cold water washing and drying, such colors may be treated with warm water without any fear. Berwick.

WEIGHT LOST IN MERCERIZING

Editor Textile World Record:

The percentage loss named by me in the April issue is based on experience. I formerly had combed and supercombed Egyptian and Sea Island hanks mercerized and dyed regularly by English commission processors, who more often than not returned 9 lb. 12 oz. or over to the ten-pound bundle. I happen also to have the authority of commission processors who have been mercerizing warps since 1900, in whose experience the loss does not ordinarily exceed 2 1/2 per cent. They have no trouble with their customers about the weight returned, the principal interest being to secure full length.

The General Processing Co. do not state in what part of the mercerizing process their loss is incurred. Presumably it is in that part in which wax, oil and other matters are removed by the alkali. If so it will be moderately apparent that the loss varies with the amount of pectic matter present, an amount which is inconstant.

Since the question of "the precision of some writers" has been raised, it is permissible to point out the flaws in Mr. Cabrey's own statement. The normal (i. e. permissible) moisture in plain cotton yarn is not 8 per cent. but 7.83 per cent. (= 8 1/2 per cent. regain from absolute dryness). The contention that mercerized yarn contains in an air-dried condition more moisture than plain yarn, does not rest upon the authority of "Wessex." Dr. Knecht puts the excess roundly at 5 per cent. Eber Midgley of the

Bradford Technical College has reported the result of his experiments upon the comparative absorbency of cotton before and after mercerizing. Samples were dried first to absolute dryness in a conditioning oven, they were then exposed to the air for 24 hours and weighed and this was the result of the test:

Absolute Dry Weight		Regained Weight
100	Gray Yarn	108.8
100	Mercerized Yarn	112

Mr. Midgley noted that "as the standard of moisture allowed in ordinary cotton is 8.5 per cent., it is evident a further allowance becomes necessary in the use of mercerized yarn. An allowance of 11 per cent. for moisture in mercerized cotton yarn is recognized in many quarters for commercial transactions."

It will be a simple matter for McCabrey to get samples of his mercerized yarn conditioned at a public testing-house, by which time he will have a better warrant for falling foul of a general reply to a general question, the general accuracy of which he has not shaken.

Wessex.

A "NEW" SILK FIBER

Editor Textile World Record:

I have come across a wild plant in New York State which I believe if cultivated would be far ahead of kapok, not only because it grows and produces fruit in a few months, but also because I have found the fiber to be of great strength and does not lose its luster. This plant grows to a height of about 2 feet. Its main stem is about 1/4 inch in diameter and it has long glossy leaves. The plant grows during the summer months in the North, and all the year round in the South. The fruit is about 3 inches long with a width of about 1 inch diameter at the center. This fruit contains any number of silky fibers which are about 1 1/2 inches in length. These fibers possess great consistency and are very lustrous. At the base of the fibers are the seeds of the plant, which besides being an agent for the reproduction of the plant, contain a great percentage of oil, which no doubt would be an important factor either for soap making or machine lubrication. Have you any idea what this plant is?

Brownville (2265).

The description of the "silk plant" can refer to but one species, the common milk weed, Asclepias Syriaca, which not only grows from Canada to the Gulf of Mexico, but is as common in many portions of South America. It also thrives in parts of Europe. Probably no wild fiber plant in the United States has been the subject of so many inquiries by the uninformed who see in its utilization a possible source of wealth. As your correspondent says, the silky hairs from the seed pods of the plant are quite strong, an inch or more in length, and very lustrous. However, they are too smooth to be spun, or to be utilized in any way save as an upholstery fiber, for stuffing pillows, etc., and as there are so many other kinds of similar fibers that are better adapted to the purpose, it may be said to have little or no commercial value. On the other hand the bark, or bast, from the stalk, when properly prepared, yields a superior fiber, that from another species of Asclepias, growing in the Middle West (A. incarnata), being almost as strong as flax.

The silky hairs from the seed pods of Asclepias have been manufactured in an experimental way, but such products should be regarded as more curious than practical. In such "manufactures" the hairs must be mixed with a large percentage of wool or other fibers, as they could not be spun alone. Asclepias down has little in common with Kapok, and could never be employed even as a substitute for that fiber save in a limited way.

At least a score of plants yielding the so-called "silk-cottons" are recognized in the world's flora, Kapok (Ceiba pentandra) heading the list, and produced in tropical America, Asia and Africa; an allied species is found in Brazil; five or more species of Bombax, Central and South America, and one species in India; two species of Choricia, South America; a Cochlospermum from India; the two species of Asclepias referred to above and a third species found in Venezuela, and in India, with several other unimportant species which need not be named. All of these yield seed hairs which may be used for stuffing material. The seed-pods of the species of Bombax are large woody capsules with divisions, or cells, in which the seeds and attached hairs (or fiber) are found. The seed hairs of thistle-down are attached in a similar manner.

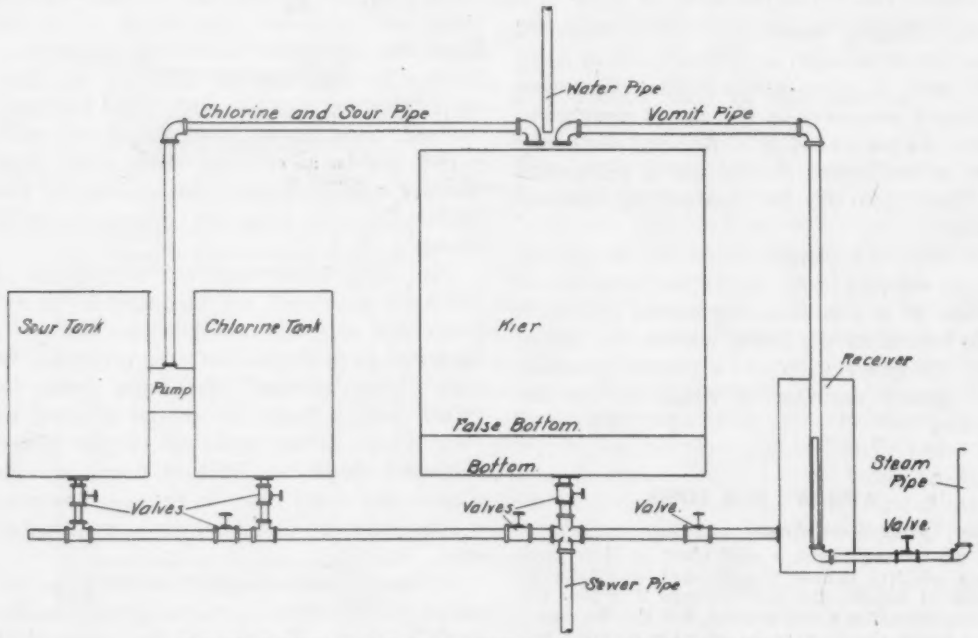
Chas. Richards Dodge.

BLEACHING KNIT GOODS

Editor Textile World Record:

I have read with interest "Mohegan's" reply to the question regarding the bleaching of knit goods, and agree with him that the harsh feel is due to too much alkali in the boil or in the finishing soap. I have had the same experience and have found that an open kier is better for yarn and knit goods. I often wonder why yarn, knit goods and lace bleachers have not adopted the method of bleaching that is used in Nottingham. I have been in America a number of years and have seen all of the different methods of boiling and bleaching, yarn, knit goods and laces, and have not seen anything to come up to the English method. It is an inexpensive bleach and nothing is wasted.

The bleaching plant consists of a four square box open at the top and made of pine planks, 3 inches thick. It must not be made too large, 6 feet square is a good size. This box or kier is fitted up with a vomit pipe on the outside and a pipe to swing over the center of the kier at the top. It has a false bottom the same as other kiers, but made of wood. It also has a tray with holes in it to fit on top. The caustic and soda ash are put below the false bottom first, then the yarn, knit goods or lace is well packed down so that there will be no chance of the liquor running down unevenly. The tray is then put and the vomit pipe is brought to the center of the tray. Put in four feet of water and turn on the steam. This will cause a steady stream of boiling liquor to go down through the goods. When the goods are boiled enough the liquor is run off and the goods washed in the kier.



KIER FOR BOILING, BLEACHING AND SCOURING LACE, YARN AND KNIT GOODS

The bleaching is done in the kier without removing the goods. To do this we had a tank below the floor to hold the bleaching liquor and a pump to lift the liquor and throw it on top of the tray, the same as in the boiling. The liquor runs back into the tank. When the goods are white, wash off with water, allowing this liquor to run into the liquor tank to save the chlorine. Then put the outlet pipe into the sewer and let the water run until every trace of chlorine has disappeared. The sour bath is next arranged in the same way. When well washed off the yarn is taken out and given two turns in soap suds to take off the loose lint. To

soften and blue the yarn, we put the knit goods or lace in a washing machine. We had no harsh goods. Hector.

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ESTIMATING COST OF RIBBON

Editor Textile World Record:

We are enclosing herewith a sample of ribbon that we make and regarding which we wish to ask a few questions.

In the making of this ribbon, we are using the following material, at the stated prices, to produce the finished ribbon. What had the total cost ought to be, adding 60 per cent. of the labor, as you find it, as overhead burden. For warp, we used 52 ends of organzine, bleached and dyed in the skein, with an average yardage of 200,000 yards to the pound, at a cost of $6.88 per pound, net. For filling we use three thread tram, dyed in the skein, and having an average yardage of 72,000 yards per pound, at a cost of $4.16 per pound, net, in the skein. Width of ribbon, 5 1/4 lignes, full—104 picks to the inch.

After taking the ribbon from the loom we inspect it and cut out any unusual imperfections, and without finishing put it on wood centers, which cost us $2.50 per thousand—eight yards on a center, allowing 8 yards and 3 inches to each coil, for full measurement. These coils to be labeled on both sides—boxes costing 3 cents each. What had ought to be the cost of 1,000 coils, or pieces of this goods, put up in boxes as described.

We are figuring on going into the manufacture of this ribbon, called, we believe, seam binding. Could you give us pointers as to just what kind of material is used by the manufacturers in general in making this ribbon?

We would appreciate a cost estimate showing in detail the cost of producing these goods, with the prices that we have submitted, as we are paying for material, that enters into the ribbon.

Canisteo (2312).

We published in our December, 1912, issue an illustrated explanation of the method of estimating the cost of ribbon, issued about that time by the Silk Association of America. We advise "Canisteo" to estimate the cost of the ribbon by this system, basing it on the fixed charges in his own establishment. An estimate by one not familiar with the costs in his mill would be of very little value to him farther than to explain the method of cost finding. This, however, is clearly explained in the statement issued by the Silk Association, which was published for the purpose of standardizing the methods of estimating the cost of ribbon throughout the country.

SIZING AND SLASHING HARD TWISTED YARN

Editor Textile World Record:

We would like some information in regard to the sizing and slashing of 30s, 40s and 50s yarn, hard twist, and the way the yarn should be run on the slasher, the ends numbering 1100 to 1200 in the warp. We tried to run the colors with the white, but they get tangled up and would not pass the lease rods. We put the section beam in the creel as follows: 1 beam of white and one of color, two beams of each. The ends are so curled together that they break in big bunches. We have been using a divider close to the size box, but they still curl up. Warper (2270).

The sizing of ply and hard twisted yarns requires closer attention to details than does the sizing of ordinary warp yarn. It is advisable to take a half lease on the section beams before doffing from the warper. The half lease band is placed in the yarn a few yards from the end. Place the section

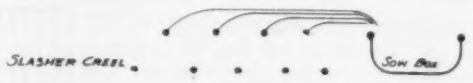

FIG. 1

beams on the high stands in the slasher creel so that the yarn can run from each beam without coming into close contact with the yarn on the other beams, as shown at Fig. 1. The ordinary method is shown at Fig.

FIG. 2

2. Put in the lease strings as when sizing ordinary yarn. Half the trouble results from the tension. Most slasher tenders will apply only enough tension to keep the yarn from running slack, but in the case under consideration, it is necessary to apply tension to each beam to keep the yarn perfectly tight at all times, as this is where it first commences to curl or roll up.

Yarn like the sample, which I find to be about 2/90s, does not require a heavy size, only enough to lay the fiber. Heavy size has a tendency to cause the yarn to curl or roll up, especially when sizing a light sheet. Run the set over in the usual manner, laying the yarn in the comb, putting in the lease or dividing rods, and then running the yarn on the loom beam until the half lease

bands put in on the warper come up to the front. Place another lot of rods, thus dividing the yarn from each beam, the rods in the half leases being placed toward the front of the machine, the ordinary lease rods being placed further back. It is necessary to have the yarn kept tight when running on the loom beam so that with half lease rods splitting up the yarn from each section beam, there is not much possibility of the yarn curling up. Following are the three most important points to consider when handling these yarns: Let each section beam run independently; apply tension to each section beam; do not size too heavy.

Reaburn.

EQUIPPING A MILL FOR BLEACHING COTTON YARN

Editor Textile World Record:

Please give me an estimate of how much it would cost to equip a mill for the dyeing of sulphur colors, and bleaching cotton skein yarn for knitting mills. I would also like to know about the buying, selling and profits obtained from a mill of a capacity of 3,000 pounds a week.

Bleacher (2198).

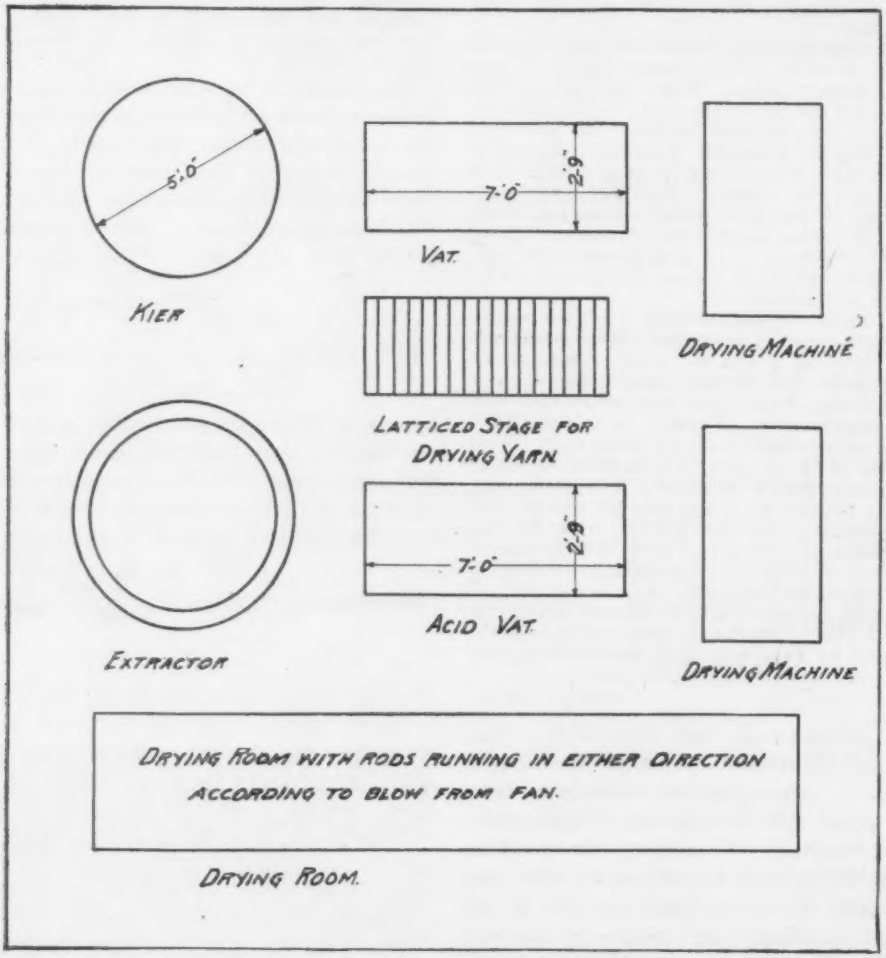

FIG. 1. LAYOUT OF A BLEACHING AND DYEING PLANT

Fig. 1 shows a plan for the lay out of the plant required. The machines and equipment required for a plant to produce 3,000 lbs. per week are as follows: A kier large enough to hold from 500 to 600 pounds of yarn. If the bleaching is done by a patent machine this kier could be done away with and four machines installed instead. Be-

sides the kier, a vat for the chlorine bath is required and a vat for the acid bath, as shown in Fig. 1. If "Bleacher" does not want to do the washing off in the acid and chlorine vats, a vat is required for washing off the yarn which could be placed in between the acid and chemic bath vats, making the ageing stage narrower or otherwise placing the vats a little further apart. I advise a separate vat for washing off the goods after the chlorine and acid baths as this would leave the liquor in these baths after each immersion. With the addition of a little stronger liquor, the baths would be ready for use without having to run off the vats for the washing process. There are some machines on the market now that can be loaded up with the yarn and the process of bleaching finished before unloading. There are, however, some disadvantages in the bleaching of the yarn in one process. The action of the machine displaces the yarn in the skein, thus causing loss of time in winding and breakages. There is a certain amount of waste in the drugs used, against the amount of drugs used in the vat or open hand system. I am assuming that "Bleacher" wants to use the kier and vat system and the caustic bleach. He can load up the kier with 500 pounds of yarn allowing 1 to 2 per cent. of caustic with 1/2 or 1 per cent. of soda ash and boil off for 5 to 7 hours. When boiled, wash off in the kier, and if not too much trouble extract all the surplus liquor before giving the chemic bath. as the liquor will penetrate into the heart of the yarn and produce a better white, the soda ash taking the edge off the caustic and leaving the goods soft to the feel. After extracting give the chemic bath and let the yarn age until clear and white, then wash off and give the acid bath to neutralize the action of the chemic. When this is done wash off and extract. The yarn is then ready for dyeing or drying, as the case may be. In the drying room the yarn is hung on rods. In order to dry it quickly I insert a brass rod so that the fan can be run to better advantage without disturbing the yarn in the skein. When the yarn is wound off there is no trouble with twisted yarns. Delco.

FINISHING CLOTH TO MATCH A SAMPLE

Editor Textile World Record:

Please give me your opinion as to the possibility of getting the same nap on the larger piece of cloth as is on the small piece, both of which I enclose. Kaneola (2316).

It is impossible to finish the larger sample so that it will match the other one, because the construction and material are entirely different. The smaller sample is made with a cotton warp, the filling consisting of a stock that gives a long, lustrous nap when napped. The larger sample, on the other hand, is a fairly well balanced fabric made with a woolen warp yarn for both and filling. The larger sample is woven with a straight twill, while the smaller sample is woven with a broken twill, Many manufacturers make the mistake of expecting finishers and finishing machines to accomplish the impossible. If the finish on the smaller sample is to be matched it will be necessary to construct the fabric in the same way and with the same kind of stock.

CORRECTION

A clerical error occurred in "Brownsville's (2257)" question regarding reddish shade on developed black. "Nitrate of soda" should have read "nitrite of soda".

WOOLEN AND WORSTED MACHINERY IN EUROPE

Editor Textile World Record:

Please inform me how many worsted and carded woolen spindles are installed in foreign countries. Stega (2300).

Our French correspondent to whom this question was referred sends us the following statistics of woolen and worsted machines which have been issued by the French customs authorities:

WOOLEN AND WORSTED SPINNING SPINDLES IN FOREIGN COUNTRIES

(These figures do not include twisting spindles)

	Worsted	Carded Woolen	Total
France	1,997,196	684,619	3,078,013
England	2,937,900	2,687,577	6,684,516
Germany	2,263,364	2,100,000	5,084,069
Belgium	288,875	274,210	656,677
Austria Hungary	...	...	850,000
Russia	...	...	800,000
Italy	...	...	250,000
Spain	...	...	150,000
Japan	...	...	400,000

Gaul.

COST OF FINISHING KNITTED LEGGINGS

Editor Textile World Record:

I would like to know the cost of finishing the knitted leggings illustrated on page 111 of the February issue, that is, finishing them completely from the feet to the top, also how many dozen a machine can turn out in a day.

Putnam (2307).

The prices paid for finishing leggings is as follows:

10 cents per dozen for cutting.
15 cents per dozen for seaming.
5 cents per dozen for crocheting the bottom.
10 cents per dozen for turning hem.
10 cents per dozen for making cords and tassels.
Taping foot is included in the operation of crocheting.
Total 50 cents a dozen.

A 6-feed, 8-inch machine, running at 60 revolutions per minute should produce from ten to twelve dozen leggings a day.

Delmar.

BLEACHING HEAVY PLUSH BY THE SULPHUR PROCESS

Editor Textile World Record:

We are enclosing sample of heavy plush that we would like to bleach by the sulphur process, also a sample showing the result we wish to obtain. Will you give us some information on this subject? Bontoc (2322).

The sample of bleached plush does not appear to have been bleached with the sulphur process. In fact I do not think it would be advisable to use sulphur on such heavy goods, for the material would be carbonized before the bleach had done its work. The color of the sample submitted is also evidence that it is not sulphur bleached. Material that is bleached with sulphur almost always has a yellow tinge and it is difficult to make the goods show white and clear even with assistants.

The best process for bleaching material like sample submitted is the peroxide bleach. I advise this for several reasons. In the first place the goods are heavy. To get a good white they have to be thoroughly bottomed, otherwise the goods look poor and seem more like shoddy than a good heavy plush with some body in it. In the second place, it being a plush fabric it is not wise to handle it too much or knock it about, as it is sure to beat out a lot of the material. Third, the goods are so heavy that the process of bleaching will naturally take much longer and there is more risk of tendering in the bleaching. From this it will be seen that the process has to be proceeded with carefully and the bleaching cannot be done too quickly or the outside would be burned and the heart of the goods would be grey.

With the peroxide process the liquor could be used at the right strength, the goods would be bleached uniform and thoroughly bottomed and would be a good uniform color. On the other hand, if a sulphur process is used the goods would have to be in the process so long that the risk of carbonizing the material is very great.

Delco.

WOOL SCOURING TESTS AT THE BRADFORD CONDITIONING HOUSE

Editor Textile World Record:

I have been informed that the Bradford Conditioning House tests large quantities of grease wool for shrinkage and conditioning. My informant states that measured by value the amount is very large and that the conditioning house has found it necessary to build additional storehouses in order to handle the grease wool and other materials that are delivered to the establishment daily for testing. Can you give me definite information in regard to these matters?

Botany (2159).

Our French correspondent to whom this question was referred replies as follows:

In order to give definite information in reply to the question by "Botany" I addressed letters to a number of well informed persons and their replies are all to the effect that the conditioning of grease wool is not ordinarily practiced in France, Germany or Belgium. Following is an extract from a reply received from a leading wool merchant at Rheims: "Grease wool is never conditioned in France. It would be impossible to do this as it is necessary, first, to wash the wool which would defeat the object of conditioning. For 7 or 8 years the Mazamet wools washed on the sheep's back, which yield from 70 to 75 per cent. in scouring, have been conditioned. We know from experience that such tests, which are made to settle disputes between individuals, have only a relative value as far as accuracy is concerned." Gaul.

Knitting Department

THE KNIT GOODS SITUATION

Since our last writing, we have had a period of warm weather that has stimulated the underwear business insofar as light weights for immediate delivery are concerned.

Retailers report quite an active demand for women's straight ribbed vests at all prices and a falling off in the call for shaped vests. There is also an indication that ribbed tights are taking the place of the ordinary French band pant to quite some extent, the reason for it being given that consumers object to the silesia or muslin bands and are taking the garments made with concealed tape in their stead.

Straight ribbed vests are being used principally in the plain trims with small portion of those made with fancy yokes and a few with fancy lace edgings around the neck and arm sizes.

Women's combination suits cut on the so-called three piece pattern are selling well, both in tuck and 1x1 stitches. We are informed that some of the large manufacturers of ladies' summer weight shaped goods have adopted the Hirsch cut for next season.

It is noticed in the sale of combination suits generally this season that the call for those made with the tight fitting knee has increased to such an extent that there are now about as many sold as of the lace trimmed ones. There has been a limited demand for a ladies' combination suit, closed, similar to the Marcella muslin drawers and combinations. These are made with the extra wide lace trimmed legs. These garments require 60 inches of lace on each leg.

Another comparatively new thing in popular priced underwear is the cotton bloomer made with elastic bands at the waist and knees to retail at 50 cents. These are also made in lisle thread to retail at 75 cents and $1.00, and are being shown in a wide variety of colors, the same as the silk lines that are retailed at $2.50 to $5.00 each. There are also some very attractive lines of mercerized bloomers being shown in knee and ankle lengths to retail at $1.25 to $1.50. One of the newer styles in silk bloomers is made in ankle length with 12 inch pleated ruffle around the bottom, giving it the appearance of a skirt.

Business on men's goods for summer has developed largely into combination suits. Some of the values in these garments at $1.00 are quite remarkable. It is possible today to buy an excellent quality of combed yarn suit made on spring needle machinery for $1.00. Retailers find it to be such good value as to cut into the business on lisles and mercerized lines that retail at $1.50 to $2.00.

Trade on nainsook combination suits continues active. The only change noted is more of a demand for those made with short sleeves.

Combination suits for boys and girls are being sold very freely and are rapidly cutting into the two piece business. Suits for girls are being taken mostly with low neck, sleeveless and with both tight knee and lace trimmed. Some excellent values in lisle thread suits are being shown at 50 cents a garment. For boys the demand is principally for ecru ribbed cotton suits made with short sleeves and knee length. There is, however, a good, active demand for boy's mesh and nainsook suits to retail at 50 cents to $1.00.

Flat balbriggan suits for men and boys have sold in a limited way and it is anticipated that this branch of the business will increase another season. Several manufacturers have indicated their intention to add flat union suits to their line. The essential feature in the making of these goods is to have them full size, as there is not the elasticity to these suits as there is to those made of ribbed fabric.

A number of jobbers interviewed recently report that their total business since January

first on light weights is ahead of last year, notwithstanding the cold weather that hung on so long. While it is believed that stocks in the hands of jobbers are heavy, there is an optimistic feeling that with a warm June and July it will be possible to clean up as well as usual. It will not be necessary, however, for jobbers to call upon the manufacturers to any very great extent for duplicates.

From the information that we can obtain on the fall business, retailers have so far bought only about 50 per cent. of what they usually have ordered at this time. There seems to be an intention on their part of delaying further buying until nearer the time that the goods will be wanted. This is having a bad effect on the jobbers and manufacturers, as neither will speculate largely on stocks of merchandise. If a normal demand develops when the season comes on, there is quite likely to be a scarcity of desirable lines of underwear.

In going over the fall orders thus far taken, it is noticeable that very little business has as yet been done on men's fleeced shirts and drawers to retail at 50 cents and under. There have been a few fleece lined combination suits sold, but the business on two piece fleeces is very small.

There has been a fair business placed on men's cotton ribbed shirts and drawers to retail at 50 cents a garment. These have been taken mostly in ecru color and in 8 and 11 pound weights.

Men's ribbed combination suits are selling well in the various weights of cottons and worsteds, but more particularly in cottons that get to the retailer at $8.00 to $8.50 per dozen and in the worsteds at $15.00 to $16.50.

Orders on women's goods run largely to combination suits. It is quite noticeable that a large proportion of those orders call for suits made with low neck, elbow length sleeves. Jobbers tell us it is necessary to carry nearly every line of both vests and combination suits made in this way.

HOSIERY

General conditions in the hosiery end of the business have not changed much since our last issue. The orders coming to the jobbers from retailers are very limited and as a majority of jobbers have heavy stocks on hand, there is very little new business coming into the manufacturer's hands. The advent of warm weather has had the effect of livening up retail departments to some extent, but apparently not enough to affect the primary market. In some quarters manufacturers have gone so far as to curtail their production until such time as there is more activity shown.

The weakness in the conditions has not brought to light any material concessions in prices and indeed it is a question if a lowering of prices would have the effect of improving the same.

Retailers who cater to the better class of trade advise us that it is distinctively a season of colors. Such shades as rose, tango, green, grey and purple are among the most active in demand. Tans are slow and in some quarters white is not quite so popular as was anticipated, although as the season advances both will undoubtedly be in better favor.

The recent advance in price of silk which has placed the figure on this commodity above the $4.00 mark has disturbed some manufacturers of silk goods. If there are further advances to the old quotation of $5.00 to $6.00 per pound, it would no doubt have the effect of stimulating business in the mercerized lines, as well as the lisle thread and wood fiber to take the place of the lower priced silks that are now so popular.

Among the more extreme novelties being shown in hosiery are those made with two rows of eyelets down the front through which are drawn ribbon or tape of contrasting colors to represent a row of lacing.

There are also many novelties being shown in the way of boots embroidered with animal designs, such as rabbits, frogs, lizards and butterflies. One extreme recently shown from Paris is a stocking made of purple silk printed with gold tinted roses.

SWEATERS AND FANCY KNIT GOODS

Business on men's and women's sweater coats has fallen so far behind last season as to be almost out of comparison. Many mills

probably have only 20 or 25 per cent. of the business on their books that they had in 1913. Many sweater manufacturers have shut down entirely and some are running on short time and with a small portion of their force. On the other hand, a very good business has been placed on knit skirts, squares, Newports and hoods. We learn that recently some very good duplicate orders have been given on these various lines from jobbers who pay special attention to their knit goods department.

Baby's knit sacks, leggings and caps made on links and links machinery have sold well and a very satisfactory business has also been placed on infants' sweaters. In this connection we might say, although sweater coats for women and men are not in good demand, there seems to be always a staple business on children's coats, particularly on worsted plaited goods at $7.50 to $9.00 and on wool lines at $9.00 to $15.00. These are being taken almost entirely with shawl collars and in the plain stitches. Some few orders are being placed for men's coats with V neck in navy, maroon and grey at $18.00 to $30.00. There are also a few orders coming in for men's rope stitch coats with shawl collars at $24.00 to $40.00.

Whatever business is being shown on women's coats is on lines of a fancy nature, that is to say, brushed coats in fancy mixtures, as well as light weight worsteds in heather mixtures. These are being taken principally in V neck and for spring and summer delivery, the idea of retailers being that a fair size business can be done on this class of merchandise for outing garments.

A fairly good trade is being done on the artificial silk coats at $42.00 to $80.00 per dozen. These are being shown in a wide range of high colors and in two toned combinations. Sashes are used with many of these and not a few turbans have been sold to make up the sets.

FLAT BED KNITTING

BY TRENTON

We recently set up a new flat frame alongside of a lot of old ones. This frame is of the front and back needle bar style, but has not many improvements over the style made thirty years ago. The old frames had given more or less trouble on account of holes near the selvage. In most cases the holes were caused by the cam bar not filling out a complete movement of the cams. The old cam movement arrangement was a most deceiving affair. It could be tightened fast to lip springs at the end of a course and could not be moved, but after running a few minutes would get loose and a screw driver blade could push the bar back. Among the improvements on this new frame was a new form of lip spring with screws set in slotted holes to allow for sudden pressure on the stitch cams. The first glance at this slotted spring gave me a new idea and when tried out it proved successful.

FIG. 1

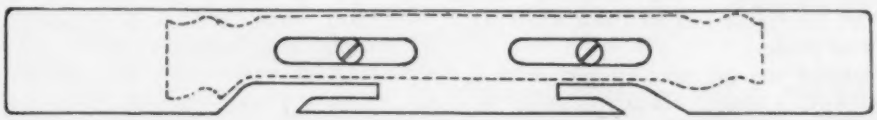

FIG. 2

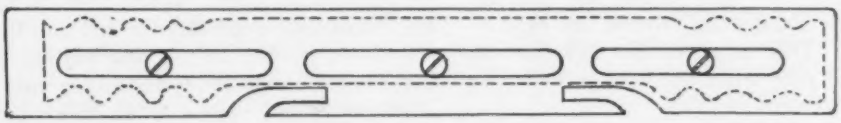

Fig. 1 gives a good idea of the old style arrangement; Fig. 2 shows the improvement. This improvement is most useful in connection with worn gears. Naturally the gears wear, leaving a play at the end of the course. To overcome this play in connec-

tion to the cam motion another part was used in place of the usual piece that had to be nicely fitted to the cam bar. This was used to prevent a difference in the cam throw on account of loose mesh gears or wear of other parts, giving the appearance of uneven stitches. A quarter inch hole was drilled through the front of the cam bar posts, Fig. 3, and tapped for a set screw. A rod long enough to give a full throw was inserted through this hole. The frame was turned to allow a full cam throw, Fig. 4. The rod was set against it and made tight. This also will be found a simple and effective way to set and adjust the cams. Instead of working an hour or so filing the slide piece to fit, the frame will set itself when the set screw is loose.

We replaced the old take-up wire with a fine steel wire; a longer reach top piece replaced the old one. This gives a better take-up, will hold the yarn steady and all the trouble with slack ends around the selvage will cease. This is especially effective on fine worsted yarn when the feed holes in the yarn guide are cut or worn.

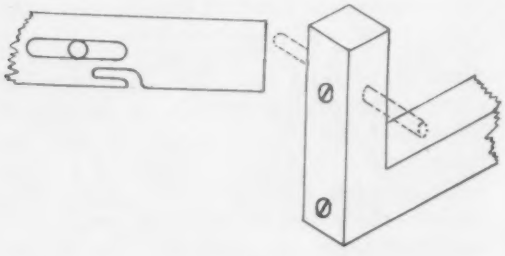

FIG. 4

Where a strip is made the slack selvage is more marked, because the take-up spring has more time to slacken or rather pull the strain out of the yarn, allowing no tension when started on the next course. This causes trouble all around as a looper cannot even the stitches, leaving the looped seam ragged and uneven. Another cause for the holes is the presser bar. This becomes rough and uneven with sharp edges on top. There is no way of fixing this bar and the best way is to throw it in the scrap heap. A few years ago we got a new frame, but the striper on one section would not work. A man sent from the shop to set the frame up was on the job three weeks, but the machine still made holes and he gave the job up. When he left I looked it over, but could see nothing wrong. Some time later I had occasion to take out the presser bar. It did

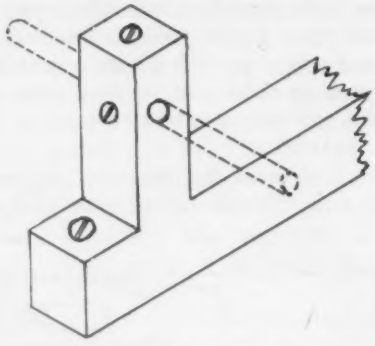

FIG. 3

not look straight or true and was too sharp, so I put in another. When I got ready to start the frame some days later I had forgotten about putting in the new bar, in fact I had forgotten what I had done and was much surprised to see good work coming

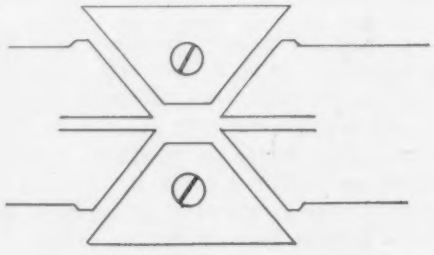

FIG. 5

down. As an experiment I traded the bars back and the holes began to appear so I knew the fault lay with the bar, which was too sharp.

Another difficulty is in keeping the stitches even. One stitch cam might be softer than another. The wear on the soft one will make a short stitch. The cam screw heads wear allowing a play that will shorten the stitch. To overcome this wearing away the cams should be tested for hardness. If hardened screws are used about half the knitter's troubles will be overcome. A stitch cam will do better work if the two needles

are held down instead of releasing instantly when the stitch is formed. This gives a higher loop, so desirable in this class of goods. Some of the German frames hold at least four needles before releasing slightly, then hold a few more while the opposit set of needles is forming the stitch, Fig. 5.

The brushes that open the latches on this frame are of the firm, stiff bristle style and naturally the cams and bars that hold the needles in place must be fitted so that a needle will not have a slack motion and get to one side of the brushes, causing drop stitches.

In plating on this frame care must be taken to have more tension on the face thread than on the other thread. Poor plating is very often due to the yarn carriers. A worn or cut carrier can cause more trouble in this respect than anything I know of. A cut carrier will cause more tension than the regular tension itself, throwing either end back or front in addition to cutting off the thread frequently. A hard, smooth running surface at all times is the only safe way on expensive silk, even if the cost of carriers is doubled.

KNITTING ACCORDION STOCKINGS

The accordion stocking shown in the accompanying illustration is knit by a method that has recently been patented in this country and described by the inventor as follows: The invention relates to a stocking knit with two different yarns so as to produce normally separated one-yarn wales which are closable together accordion-like by the stretching of the knitted fabric. Accordion stockings of the full fashioned type have been knit heretofore on straight knitting machines, but this invention provides a seamless continuously knitted product with less material and at much reduced cost. Fig. 1 indicates a seamless stocking of the new construction. Fig. 2 shows the interlooping of the yarns both for an accordion effect leg or foot portion and for a continuously knitted connecting heel or toe. Fig. 3 is another view indicating the accordion-like closing together of the wales which result from lengthwise stretching of the fabric shown at Fig. 2. Figs. 4 and 5 illustrate special features of circular knitting machine construction which make practicable the production of the improved stocking.

This stocking is of the seamless type, the leg, a, and foot, b, being knit in circular

FIG. 1

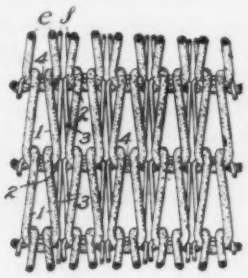

FIG. 3

courses, while the heel, c, and toe, d, are produced by the well known narrowing and widening operation in which only half of the circular series of needles, consecutively arranged, are used with the movement of the cam cylinder changed from rotary to reciprocating. In the new construction the circularly knit leg and foot portions are made up

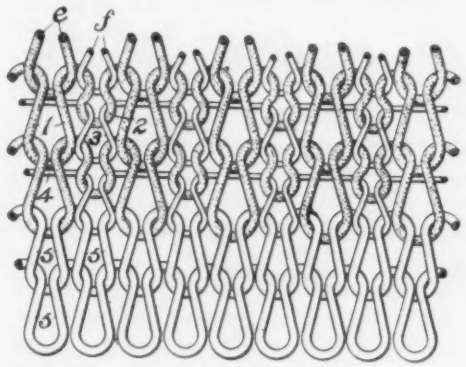

FIG. 2

of two different yarns, e and f, so interlooped as to produce the accordion effect referred to, while the heel and toe portions are knit as usual; the different texture of these portions, and the accordion action of the leg and foot portions are shown in Figs. 2 and 3 respectively. As shown in the upper courses of Fig. 2, each circularly knitted course is made up of long single loops, 1—1,

of the heavier yarn, e, alternating with two shorter loops, 2 and 3, of the yarns, e and f, respectively. The intervening loops, 2 and 3, are jointly equal in length to the longer loops, 1, and the loops, 3, of the lighter yarn, f, as indicated, are being connected by drop-stitch portions, 4, of the yarn, which floats across the rear of the longer loops,

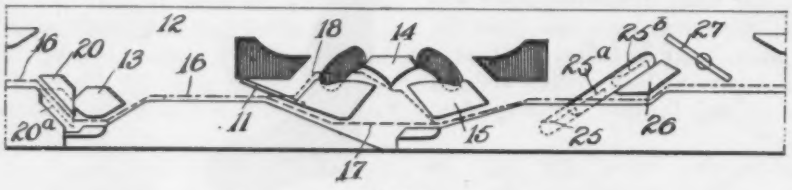

FIG. 4

1—1, so that said one-yarn loops, 1—1 of successively knitted courses form parallel wales, which are normally separated by the intervening lines of connected shorter loops, 2—3, 2—3. When these circular courses reach the heel or toe, the knitting is changed to the ordinary looping as indicated at the lower part of Fig. 2, the regular loops, 5, 5, 5, being formed of one or both of the threads, e—f, or of different yarn spliced thereto as usual.

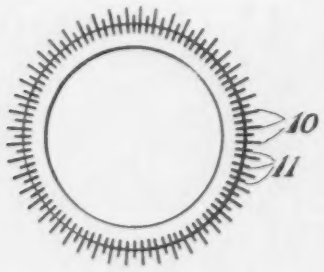

FIG. 5

The accordion action of the leg and foot knitting above described, is indicated in Fig. 3, where the fabric is represented as stretched longitudinally; thus lengthening the loops, 1—1, by adding the material of the shorter loops, 2, of the same yarn, e, and correspondingly lengthening the shorter loops, 3, by adding thereto the material of the floating drop stitches, 4, of the same yarn, f, while at the same time closing together laterally the wales formed by the loops, 1—1, so as to conceal the lighter yarn, F, and thus vary the appearance of the fabric.

The production of this stocking involves changes in the ordinary knitting operation and mechanism, which is shown at Figs. 4 and 5. The main feature is that one of the two yarns which make up the circularly knitted courses of the leg and foot portions must be knit upon all the needles and the other upon alternate needles only, while the continuous yarn forming the heel and toe portions must be knitted upon certain consecutive needles as in the ordinary widening and narrowing operation. In order to produce this different looping of the two yarns forming the leg and foot portions, alternate needles, 10—10, of the circular series, see Fig. 5, must be operated differently from the intervening needles, 11—11. To accomplish this, they are provided with hubs of greater length than the hubs of the intervening needles, so that the rotary cam cylinder of the machine may engage and operate these two groups of needles as required for producing the texture shown at Fig. 2.

The heel and toe are knit in the ordinary manner upon a consecutively arranged half of the needles. While a separate grouping of alternately arranged needles of the series is required in knitting the leg and foot portions of the stocking, the ordinary grouping of consecutively arranged needles of the same series is also required in order to produce the heel and toe portions. Fig. 4 shows a special arrangement of cam cylinder by which the proper working of required needles for successive portions of the stocking may be effected in a continuous operation

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The total estimated number of looms in the United Kingdom and Ireland is about 740,000.

Dyeing, Bleaching, Finishing, Etc.

DYEING OF COTTON CORDUROYS

BY BETA-NAPHTHOL

This class of fabrics retains its popularity for many purposes, not only for certain kinds of men's wear subject to hard usage and in spite of the introduction of heavy khaki dyed duck, but also for women's dress material. Cotton corduroy is commonly prepared for dyeing by singeing either over plate or gas apparatus. The more modern mills being equipped with the latter type of appliance, as they always turn out a neater job. The old fashioned furnace fired affair with a copper plate was as erratic in its heating action as the ambition of the boys usually in charge of it permitted; at times being bright red and at other times barely hot enough to scorch. Proper singeing temperature is that at which the fly is at once completely consumed.

The usual bowking process as applied to plain cotton goods is not usual for cotton corduroys, but the pieces are thoroughly wetted out with turkey red oil in a boiling bath containing from 10 to 12 pounds of soda ash and 5 pounds Turkey red oil to each 500 gallons of the wetting out bath. This wetting out has a tendency to loosen up and remove considerable of the dressing on the warps, but for the better class of such fabrics the diastafor treatment is preferable. The strength of the diastafor bath varies with circumstances, but for a 500 gallon bath from 5 to 10 pounds is a fair average. The goods are run through this bath at about 100° F., then rolled on clubs and allowed to stand preferably over night. For such goods as have a face the laying in plaits or folds is undesirable, especially when several hours intervene between the removal from the diastafor bath until they are washed.

This bath causes a fermentation, which, when sufficient time is allowed, completely changes the starch or color used in the warp dressing and which treatment is easily removable by an ordinary good washing. Generally after this treatment the corduroy is ready for dyeing. In some cases, however, the fabric has to be bleached in order to permit particularly light shades or even whites to be obtained.

Corduroy bleaching is not particularly easy. Formerly it was the general custom to bleach altogether with chloride of lime solution, but owing to the fact that sulphate of lime is likely to remain in the pile, bleachers are gradually giving their attention to the use of soda hypochlorite, produced either electrically or by the use of bleaching powder and soda ash. This bleaching process has been so frequently described that it is not necessary to repeat it again, but it is desirable to draw direct attention to the general good results that are obtained from its use. As a rule a good bleaching strength is 1 1/4° Tw. Sufficient time should be given to permit the bleach liquor to penetrate, not only the pile of the fabric, but the back as well. If the goods were wetted out before hand and a perfect bleach through the cloth is not obtained, the fault is due to the fact that the time in the bleach bath was not sufficient to give the result desired.

After bleaching the cloth is removed through squeeze rollers, washed and soured, preferably with acetic acid, although the use of muriatic acid is quite permissible. Following the singeing a thorough wash should be given, then the treatment with anti-chlor, followed by a thorough final wash and a bluing for which purpose alizarine cyanole violet R gives good results, of which 2 1/2 oz. per 500 gallons of tinting liquor is generally strong enough. Some bleachers use the old tinting liquor for the wash water after the souring, saving the last traces of bluing which helps the results along.

Cotton corduroys are generally dyed in the jig or a large rectangular kettle over a winch. For special shades where the output is not to be very great a hand winch is probably the more economical, as it enables the dyer to control his shades better, especially when dyeing with direct or sulphur colors.

On the other hand, the jig works well for output and enables the dyer to use advantageously other classes of dyes besides those mentioned, since the vat colors have been gaining popularity. For this class of fabric the jig method of dyeing applies more advantageously as the rate of oxidation is very much reduced and the penetration of the goods with the reduced dye liquor soaked into the folds tends to produce a finer fabric.

For the general run of cotton corduroys, the diamine colors serve a very wide purpose and particularly when after-treated with metallic salts; generally bluestone and chrome. The immedial or sulphur color group likewise supplies many dyes for this purpose, producing so-called mode shades and which are likewise subjected to an after-treatment. The use of basic colors for topping is not as common as formerly, the reasons being that the basic colors are not fast to light, do not resist rubbing in particular and consequently if garments are made of such cloth the characteristic bloom of the new goods rapidly disappears.

Since the introduction of the vat colors, however, dyers have been successful in producing a wide range of shades meeting every commercial requirement. By whatever method cotton corduroys are dyed, it is imperative that they should be finished in such a way as to bring out the evenness and brilliancy of the colors. After dyeing, the cloth is thoroughly washed, following which it is whizzed on a horizontal whizzer, as every care must be taken to preserve the character of the pile, and then dried. From the dry room the face of the cloth is brushed, that the pile may lay in one direction, when it is ready for the shears. After shearing, the goods are given a cross-brushing, the brushers being arranged so that the pile is brushed out in the direction of the cloth, then alternately from one selvage to the other and back again and finally a brushing in the direction of the cloth. By this means, the loose pile is completely removed, the pile being given a thorough cleaning and the possibilities of the cloth off-setting color on lighter goods reduced to a minimum.

Dealers in cotton corduroy can call to mind frequently instances where complaints have been made to them regarding loose color in pieces of such cloth bought from them, when after careful examination it has been found that the loose color was not color at all due to imperfect dyeing, but rather to extremely short particles of dyed cotton fiber that had not been all brushed out of the pile. This only emphasizes the necessity of thorough brushing at every point where it is possible to remove loose particles. It has been well stated that the making of a piece of corduroy or velvet is in the finishing room rather than elsewhere. Good weaving may make the fabric; attention in dyeing may give the color; but it is in the finishing room where the fabric is really made to please the eye of the purchaser. Following the shearing and brushing the lustering deserves some attention. The lustering machine for cotton corduroy is sometimes called a waxing machine. It is on this piece of apparatus that a certain small amount of hard wax is applied to the face of the goods and brushed in by friction and which gives the peculiar sheen to the cords.

Every finisher has his own wax mixture to apply. The basis of most all waxing compositions for corduroys is beeswax fortified with from 10 to 35 per cent. of Japan wax. In summer time the wax should be harder than in winter time. In fact, unless the finishing room is warm in winter time it is necessary to add low melting waxes such as paraffin to cause it to harden more easily. These wax cakes are molded either in two forms, on blocks of about 1 1/2 inches wide and sometimes wider than the finished piece of goods, which permits them to be clamped in hollow boxes, cast on the end with a revolving iron or cast in molds on round bars which permits them to be held in the machine similar to a roller, so that it does not revolve, the purpose being to allow the cloth to work over the wax coating.

French waxing machines seem to lead. Those most commonly used are constructed on the revolving arm principally. After the cloth is waxed it is given a thorough brushing with rapidly revolving stiff bristled

brushes set spirally, the corduroy being laid over the machine with some tension, which causes some friction which is necessary to generate heat, causing the wax to soften and become more evenly distributed through the action of the brushes. This is the last operation and the corduroy should be handled as little as possible afterwards.

In dyeing cotton cords in the jig, and particularly for fancy shades, the use of soluble oil in the dye bath is always an advantage. For cheap lines of work where extensive preparatory treatment cannot be afforded, the wetting out process may be omitted, the soluble oil being added directly to the dye bath, serving to take the place of any preliminary operation other than singeing. Dyeing these goods on the jig requires that the dyestuff should be first dissolved in boiling water and then added in two portions, at the end of the first run and at the end of the second run. The soluble oil can be added to the bath before any dyestuff is added, in a measure preparing the cloth to take the dye. After dyeing in the jig, the spent liquor can, as a rule, be run off, it being seldom found economical to save the dye bath for second and succeeding lots. The dirt removed from the piece during the dyeing tends only to flatten the shade of the succeeding lots.

Cotton corduroys have been dyed on a padding machine, light shades being more successfully produced this way than heavier shades and for cheap goods where the output is large. For the better grades of goods, those in which the back is more tightly woven, it is found possible to dye on the jig closely related to the cotton cords making the cotton velvets. The general operation is practically the same and what applies to the finishing of one generally applies to the finishing of the other.

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In 1764 James Hargreaves, of Stanhill, near Blackburn, invented his spinning jenny, which was driven by a fly-wheel, and held a number of spindles slightly inclined from the perpendicular, a movable frame receding from the spindles during the extension of the threads and approaching them in its winding on.

DECATIZING WOOL GOODS

BY F. SADLER

From the Dyer and Calico Printer

The object of wet and dry decatizing is to obtain luster, smoothness and softness of handle, and considerable care is required in the operation, in addition to having the goods also properly prepared beforehand. This latter of course applies only to raised or face goods where the nap must be even, straight and well laid. Plain goods, such as worsteds and tweeds, require no preparation, but only care in the winding and blowing. With face cloth it is most important to have the nap uniform in length, and not ragged with uneven patches in between, as these faults cannot be remedied afterwards on account of the nap being then fixed.

Successful raising plays a great part in the get-up of a faced cloth, and those to receive a high luster should first be raised with a normal amount of water, the amount to be increased with the sharpness of the teazles. Following after wet decatizing, the goods are usually given a round or two over the gig to straighten, and are then roll boiled for 4 or 5 hours, allowed to cool on the roll, and then pulled off and dried. The high luster from the raising is fixed and intensified by the hot steam and pressure, and the degree of luster is also dependent upon the sharpness of the blowing. Plenty of hot, dry steam is the first essential. Low pressure steam condenses before all the moisture is blown out, which is highly detrimental to the finish.

Careful shearing is also part of the secret of success, and this must be done by degrees so that the nap is kept perfectly uniform. As the pieces come from the tentering machine they are given a round or two over a beating gig just to lift and straighten the nap. The brushing and cutting must be made to correspond; if brushed too keenly the cloth will come up rough. Before decatizing, the nap should be examined, and if any roughness or unevenness is found the best way is to wet it out again and return to the gig. Heavy cutting in the first stages will tend to make the nap rough, as sharp brushing will be necessary in the final cut-

ting process to lift up the short fibers within reach of the blades. If the nap is cut too short, no amount of decatizing will bring a good luster. The best quality cloths are always given two or three gentle blowings, with wet brushings, and careful cutting in between.

Before the final decatizing takes place the goods are given what is termed "curf" pressing, which lays the fibers perfectly smooth in which state the steam blowing fixes them. The degree of luster put on by the pressing, depends upon the class of material under treatment, those requiring a high gloss must be pressed with a heavy pressure and considerable heat, and should be allowed to cool before being thrown out of the papers. For the lower grades roller presses are generally used, but for the best work there is nothing to equal the slow process of pressing with papers. A final pressing is of course given after the cloth has passed through all the blowing, raising and cutting operations. This last pressing is followed by a gentle steaming on the brush to bring the luster down to the required extent. A dull or matt finish is sometimes asked for; this is rather difficult to produce, and to keep the face smooth and soft at the same time. To effect this the raising must be done from the first with as little moisture as possible. This unfortunately causes a thick, lofty nap which is difficult to lay straight.

In hydro extracting, the centrifugal swing has a tendency to roughen up the nap, and the use of a suction machine similar to that shown in the diagram is much better than the common method. If a suction plant is used, the goods must travel over the slot with the face side uppermost, in order that the nap may be sucked down close to the fabric. A traverse given with the face side down would result in the nap being disturbed and drawn away from the material. The same applies to drying with currents of heated air, which must not pass through the cloth from the back, but always from the nap side. In traversing any machine, cutting, steaming, brushing, or pressing, the material should be entered tail end up. That is the way the fibers of the nap lay, from the root which is fixed in the body of the fabric, to the free end which slants towards the head of the peace.

The nature of the wool composing the cloth makes a big difference in the ease or difficulty of obtaining a lustrous face, some wools being naturally dull and difficult to impart luster to, while others take it on very easily. With the first class of wool, the raising should be given very wet, and the pressing sharp. By raising wet less flocks are made, and the nap is flatter and more even. With a certain class of material, wet raising is indispensable, as this is the only method of getting to the bottom. It is a common complaint that wet decatizing tenders the goods, and when carried to excess this is undoubtedly the case, as repeated application of hot water and steam always results in loss of strength.

Wet decatizing, with steam or boiling water, requires much more skill in its management than dry blowing. The material must be blown fairly dry, or water which is left in will be liable to mark the cloth. Dry blowing, on the other hand, has no water to contend with, providing all condensed steam is blown out of the pipes before the actual steaming commences. With dry steam, however, at say a pressure of 60 to 80 lbs., the tendering is likely to be as great as with the wet process. With proper care in the winding on of the cloth there should be no shrinkage, and tight winding is absolutely essential to obtain anything like a bright, lustrous face. Many low cheviots and tweeds are now decatized dry, as this greatly improves the handle of the cloth by taking away much of the harshness common to the coarse wools. With the case of fine goods, wet decatizing alone is not sufficient to produce that soft, mellow feel which the cloth should have, but by giving the first process wet, and following this up by dry blowing after pressing, the finish and handle will be much improved.

The tendering of cloth by wet blowing is sometimes put down to decatizing when the fabric has been weakened by raising. It is well known that prolonged raising takes the

strength out of a cloth in proportion to its duration. In the wet process, care must be taken to suit the steam pressure to the goods under treatment and to see that the steam escapes freely and uniformly from all parts of the roll, as if kept back in any portion, this area is bound to be different from the rest.

Rewinding with a second blowing is frequently done when the fabric is dense and hard to penetrate, the second winding being of course done with the outer end of the cloth next to the cylinder. This is very beneficial when the goods are extra long. With grey material, hot steam acts very much like a mordant, hence the dark ends which sometimes occur in dyed pieces, due to either excessive blowing of one end, or to the presence of water along with the steam. In spite of ingenious machines for blowing and sucking steam and hot water through rolled cloth, the older and simpler machines are still used, and in many cases are found safer than the modern appliances. It is a well-known fact that the forcible blowing or sucking of hot water through a tightly rolled piece cannot improve its strength in any way, and very severe blowing invariably renders the cloth thinner in handle and more papery.

Unevenness of dye is sometimes put down to faulty blowing, but this cannot very well occur unless such a thing happens as the priming of the boiler, whereby water is carried over the steam. The chief danger then consists of the water carrying a boiler composition with it. Wet decatizing is always more effective than the dry method, and particularly so with grey goods which are to be dyed afterwards, as the steam heats up the contained water to the boiling point, and drives it through the material carrying all soluble impurities with it. On the other hand dry decatizing a greasy cloth would do more harm than good, as the steam alone would not sweep out the impurities, and its action upon saponifiable oils would be to drive off the glycerine and leave behind the fatty acid. Stains from grease are very often multiplied by wet decatizing, but this means that the steam and hot water drive the grease from the first spot through successive layers of fabric. Resin stains are about the worst to deal with; these generally originate from new timber used in the construction of the machines, or from roof timbers during very hot weather.

A cloth containing mixtures of various wool yarns which have different affinities for dyes, is greatly improved by a vigorous wet decatizing, as this brings them down into something like uniformity, and they dye up much better. Dry blowing has a tendency to harden the cloth and to fix any grease there may happen to be in it, so that a prolonged boiling is often required in dyeing, before a level color is obtained. Cloths containing fancy yarns of different colors cannot be safely subjected to wet decatizing on account of the colors running, and dyed goods of a self color always bleed a little if a topping dye has been applied.

It is important to extract mechanically as much water as possible from woolen goods before drying them, as this saves time and heat. For thick woolens such as serges and meltons, the squeezer is the quickest and most effective, but its crushing action is very drastic and it will crease anything but the most elastic of woolens. Next to this comes the centrifugal swing, which certainly does not crease the cloth but disturbs the nap of a faced woolen and swallows up time in the loading and unloading. To work properly the load must be equally distributed around the interior of the cage. Suction hydro-extractors are the easiest to work, and the goods passing over at open width neither crease nor disturb the nap, but their chief fault is the slowness of output which cannot very well be remedied. The essential parts of a suction dryer are—an exhausting pump, a means of removing the water as it is sucked out, a slotted plate over which the cloth is drawn at full width, and means for regulating the speed at which the goods traverse the plate. The action of the aspirator does not affect the lay of the nap, and it also extracts the water uniformly, and not, as in the centrifugal, chiefly from the exterior of the cloth as it lies in the cage. This last feature is a good one, and of great

importance, as the drying of goods so uniformly extracted can be done at a lower temperature in the drying room. In all cases, however, the goods must pass over the slotted plate with the back of the fabric in contact with the metal. These machines are equal to centrifugals as regards the amount of water they remove, and the best of them are superior to the swing where faced cloths require handling. An idea of the speed these machines work may be put down at about six yards per minute, with the vacuum gauge standing about thirteen inches, and the results at this speed are equal to that of any centrifugal machine. With loose made goods a slower speed with an increased vacuum may be necessary, on account of the air carried in their interstices.

In the use of air pumps, means have to be found for cooling the exhausters, and in the latest types of suction machines, the extracted water is made to do this, so that the machine can be kept running continuously. To render the suction effective, the cloth should adhere closely to the slotted plate over its entire width. If air is drawn in under the fabric most of the water will remain in the cloth. This intimate contact is best ensured by having a couple of free revolving rollers over the plate, and as the fabric must pass between these and the plate, it is an easy matter to adjust these so that the cloth is closely pressed down on to the slot.

Where carbonizing is required the greatest care should be taken with the goods, otherwise it will be a continual source of stained, cloudy, and uneven dyeings. Following after scouring, the cloth should be well rinsed and hydro-extracted, and the carbonizing should then be done as speedily as possible, while the goods must be kept from exposure to light during the time they carry the acid. The effect of direct sunlight upon soured cloth is to give the exposed parts a greater affinity for dye than the others, so that on dyeing, these portions take on a deeper shade. Equally important is it that uncarbonized cloth should not come into contact with dyed material, particularly those dyed with cotton colors, as dyes of this kind bleeding on to uncarbonized material frequently become fixed by carbonizing into permanent stains.

After being carbonized, the cloth should be neutralized before it is entered into the milling machine. Disregard of this precaution often means that acid is left in which combines with the alkali after the milling soap, leaving a free fatty acid. A small margin is always left for further shrinkage of the width after milling, particularly if the material is difficult to penetrate by dyes, and destined for a prolonged boil. Goods for indigo do not shrink to any appreciable extent in the vat, but the subsequent boiling in the dye vessel may cause some loss in width, as few blues are now dyed without topping. Decatized grey cloths do not take up blue in the vat so readily as those which have not been blown, and as vat dyeing does not disturb the nap so much as dyeing at the boil, the cloth is usually dyed first.

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FORMULA FOR SIZING

Editor Textile World Record:

Referring to "Chemistry and Practice of Sizing" by Bean and Scarisbrick, on the bottom of page 296, a formula is given for pure sizing and caustic soda is one of the ingredients. On the top of page 297, the author states that salicylic acid may be employed as an antiseptic in sizing when used in the manner described on page 257. On referring to page 257, under the head of "The Use of Salicylic Acid in Sizing," we find in this section that salicylic acid loses its antiseptic properties if free caustic alkali (such as caustic soda) is an ingredient of the sizing.

We are at the present time using a sizing mixture containing sago starch, glycerine, caustic soda, linseed oil soap and tallow. We have some trouble with mildew and are desirous of using an antiseptic of some kind to overcome this. So far we have been unable to find anything in the "Chemistry and Practice of Sizing" which we consider safe to use in sizing under our conditions, and would ask you to kindly recommend a remedy for this difficulty. Arnprior (2313).

I cannot quite understand how the goods will mildew unless they are made up while in a damp state or else packed away in a damp place. A good sizing for any cotton goods requiring a full and soft feel can be made with

30 lbs. cornstarch,
3 lbs. tallow.

1 pt. carbolic acid,
to make 100 gals.

I think "Arnprior" needs carbolic acid as an antiseptic in the sizing. I have used it frequently and it gives very satisfactory results. One pint to 100 gallons is not enough to create any odor and yet it is strong enough to resist decomposition.

Montrose.

Dye Recipes

The following recipes appear in the Dyers' Supplement, which is issued each month by the TEXTILE WORLD RECORD. The Supplement contains the colored samples, dyed according to recipes given. The selection of samples is carefully made, and it is the aim to show shades which are of especial interest to the dyer, and which the requirements of the market demand. The Dyers' Supplement is a 16-page pamphlet, in convenient form for preservation. Subscription price for the Dyers' Supplement $1.00 per year.

Recipe No. 62

GREY ON WORSTED DRESS GOODS

Grey on 100 lbs. worsted dress goods. Prepare the dye bath with

4⅘ ozs. Amazo Blue.
(American Dyewood Co., 80 Maiden Lane, New York, N. Y.)
3 ozs. 227 grs. Amazo Brill. Red 2 B.
2 ozs. 244 grs. Amazo Fast Yellow L R.
15 lbs. Glauber's Salt.
2 lbs. Oil of Vitriol.

Enter at 120°. Bring to boil in 20 minutes. Boil 1 hour.

The above colors are specially recommended for their all around fastness and good leveling properties.

Recipe No. 63

GREEN ON WORSTED DRESS GOODS

Green on 100 lbs. worsted dress goods. Prepare the dye bath with

1 lb. 8⅘ ozs. Amazo Blue.
(American Dyewood Co., 80 Maiden Lane, New York, N. Y.)
12 ozs. 419 grs. Amazo Fast Yellow L R.
1 oz. 137 grs. Amazo Brill. Red 2 B.
20 lbs. Glauber's Salt.
2½ lbs. Oil of Vitriol.

Enter at 120° F. Bring to boil in 20 minutes. Boil 1 hour.

The above colors are recommended for dyeing all classes of wool on account of their leveling properties.

Recipe No. 64

GREEN ON WORSTED YARN

Acid Green Y Y on 100 lbs. worsted yarn. Prepare the dye bath with

2 lbs. Acid Green Y Y.
(Innis Speiden & Co., 46 Cliff St., New York, N. Y.)
10 lbs. Glauber's Salt.
2 lbs. Sulphuric Acid.

Enter at 120° F. and dye at a boil for one hour.

Acid Green Y Y is a very level dyeing acid color of good brilliancy.

Recipe No. 65

PINK ON WORSTED YARN

Amido Red B L on 100 lbs. worsted yarn. Prepare the dye bath with

½ lb. Amido Red B L.
(Farbwerke Hoechst Co., 122 Hudson St., New York, N. Y.)
15 lbs. Glauber's Salt.
3 lbs. Sulphuric Acid.

Enter at 180° F. and dye at a boil for one hour.

Amido Red B L possesses remarkable fastness to light. It is recommended for all classes of goods where fastness to light is essential, such as carpets, dress goods and tapestries.

Recipe No. 66

BROWN ON WORSTED YARN

Fast Wool Brown B L on 100 lbs. worsted yarn. Prepare the dye bath with

3 lbs. Fast Wool Brown B L.
(Kalle & Co., 530 Canal St., New York, N. Y.)
1 lb. Sulphuric Acid.
10 lbs. Glauber's Salt.

Wet out the yarn and enter at 105° to 125° F. and bring slowly (in about 30 minutes) to the boil. Boil 45 minutes and add

1 lb. Sulphuric Acid,

and boil another 30 minutes.

Fast Wool Brown B L possesses exceptional fastness to light.

Recipe No. 67

BLUE ON WORSTED YARN

Fast Chrome Blue X A on 100 lbs. worsted yarn. Prepare the dye bath with

3 lbs. Fast Chrome Blue X A.
(C. Bischoff & Co., 451 Washington St., New York, N. Y.)
10 lbs. Glauber's Salt.
6 lbs. Acetic Acid.

Enter at 120° F., bring slowly to a boil, boil for 1/2 hour, then add

2 lbs. Formic Acid,

and continue boiling until dye bath is practically exhausted. Finally aftertreat in the same bath, adding

2 lbs. Potassium Bichromate,

and boiling 1/2 hour.

Fast Chrome X A is recommended for all classes of wool dyeing where fastness to light and fulling are required. It may also be used on a chrome bottom and as a chromate color.

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Recipe No. 68

BLACK ON COTTON YARN

For 100 lbs. cotton yarn, prepare the starting bath with

6 lbs. Sulphur Black S B C.
(Read Holliday & Sons, 11 Gold St., New York, N. Y.)
6 lbs. Sodium Sulphite Conc.
5 lbs. Soda Ash.
30 lbs. Common Salt.

Dye for one hour at the boil.

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Recipe No. 69

BLACK ON COTTON YARN

For 100 lbs. cotton yarn, bottom as in No. 68, then top with

1 lb. Topogene R H B.
4 lbs. Acetic Acid.
1 lb. Bichromate of Potash.
(Read Holliday & Sons, 11 Gold St., New York, N. Y.)

Start cold, raise to 100° F. in half an hour, then wash off and dry.

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Recipe No. 70

RED ON WORSTED YARN

Brilliant Milling Red B on 100 lbs. worsted yarn. Prepare the dye bath with

3 lbs. Brilliant Milling Red B.
(Cassella Color Co., 182 Front St., New York, N. Y.)
4 lbs. Glauber's Salt.
4 lbs. Acetic Acid.

Enter yarn at 120° F., raise to a boil and dye at a boil for one hour, adding

3 lbs. Acetic Acid,

after the boiling has continued 3/4 of an hour.

Brilliant Milling Red B will be found to possess high coloring power and excellent fastness to fulling.

Recipe No. 71

VIOLET ON WORSTED YARN

Metachrome Violet 2 R on 100 lbs. worsted yarn. Prepare the dye bath with

2 lbs. Metachrome Violet 2 R.
(Berlin Aniline Works, 213 Water St., New York, N. Y.)

thoroughly dissolved in hot water with

½ lb. Ammonia,
10 lbs. Glauber's Salts,

and finally

3 lbs. Metachrome Mordant.

Enter at 100° F., work ten minutes without steam, raise to a boil in 3/4 hour, and continue boiling for 2 hours. The heating must be regular and slow in order to insure level dyeings.

Metachrome Violet 2 R possesses greater fastness to light than the ordinary acid violets, and its fastness is good in nearly every other respect.

—÷—

Recipe No. 72

BLUE ON COTTON YARN

Triazol Blue B X B on 100 lbs. cotton yarn. Prepare the dye bath with

3 lbs. Triazol Blue B X B,
(Geisenheimer & Co., 189 Front St., New York, N. Y.)
20 lbs. Glauber's Salts,

and dye at a boil for one hour.

Triazol Blue B X B possesses good coloring power, and is excellent for machine dyeing. In general it possesses the characteristic properties of the direct cotton colors.

—÷—

Recipe No. 73

BROWN ON WORSTED YARN

Palatine Chromate Brown W N R T X on 100 lbs. worsted yarn. Prepare the dye bath with

2 lbs. 6 oz. Palatine Chromate Brown W N R T X.
(Badische Co., 86 Federal St., Boston, Mass.)
20 lbs. Glauber's Salt (Calcined).
2 lbs. Potassium Bichromate.

Enter the yarn in a lukewarm bath to which the (previously dissolved) dyestuff has been added together with the other ingredients.

Raise slowly to a boil and then exhaust the bath by adding gradually about

8 lbs. Acetic Acid, 9° T.

Very dark shades require a further addition of 1 lb. of sulphuric acid.

Palatine Chromate Brown W N R T X possesses very good fastness in nearly every respect.

New Machinery and Processes

This department is designed to present from month to month a brief mention of new machinery, devices and processes being brought out in this country and abroad, that are of interest to the textile manufacturers. It is not a list of patents but of improvements on the market, the idea being to present to our readers a systematic monthly record of new machinery, etc., of interest to textile mill men.

Whenever possible we endeavor to make a personal investigation of the new machinery and processes described in this department. In the absence of such personal investigation we must necessarily rely upon information obtained from those who control the machines and processes.

We invite machine builders and others to send us such information for this department.

Warp Drawing Machines. The American Warp Drawing Machine Co., of Boston, has developed and recently placed on the market a semi-automatic warp drawing machine for steel or wire harness up to 24 shafts with any number of beams or colors. They are also bringing out a new automatic lease picking machine for picking lease in a warp that has been beamed and they have a lease striking attachment for striking a lease in each warp as it is run off the slasher.

Sewing Machine. H. W. Butterworth & Sons Co., Philadelphia, are bringing out a new mill sewing machine which was exhibited at the Textile Show. It does away with pasting the ends of piece goods together. It sews a flat seam with three stitches at one time and trims off each end 3/16 of an inch from the stitching. It is especially valuable for use on goods which are printed or schreiner calendered.

Waste Spinning Machinery. The Whitin Machine Works, Whitinsville, Mass., have developed and are introducing new lines of waste carding and spinning machines which were shown at the recent Textile Exhibition in Boston. The machines in the coiler system are a revolving top, flat card, slubbing frame, a ring spinning frame and a twisting frame. The machines in the condenser system include a 48 inch full roller card with automatic feed and 48 inch finisher full roller card with 96 end tape condenser. These two cards are connected by a cross-feed and comprise a two card set. There are also a wool spinning frame (Pease patent) and a waste spinning frame (Smith patent). With these lines of machinery the utilization of waste products in the plant may be successfully accomplished.

Fiber Covered Shuttles. Otto Kunze, Room 501, 30 Church St., New York City, is introducing into the American market a fiber covered shuttle. The shuttle is covered with a vulcan fiber and is claimed not to break when thrown out of the loom nor split or splinter. These shuttles, which are patented in Germany, have been used for a number of years abroad with success.

Cotton Combing Machine. Richards, Atkinson & Haserick, 152 Congress St., Boston, Mass., are introducing an improved combing machine which embodies a large number of improvements. The machine is described in this issue.

Recording the Production of Machinery. Slocum, Avram & Slocum, Inc., 87 Nassau St., New York, have recently placed on the market an instrument called the "Productograph," which shows in the office of the superintendent or mill owner the production of machinery in the mill. A description appears in this issue.

Starch Mangle. Birch Bros., Somerville, Mass. An improved starch and water mangle which is described in this issue.

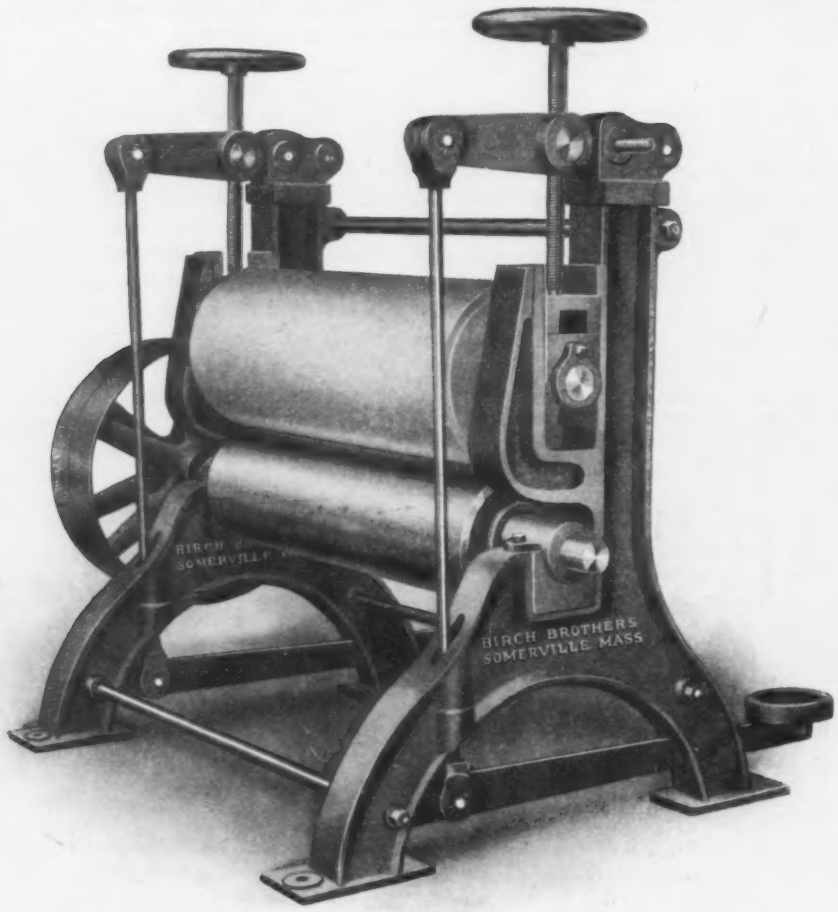
Finishing Soap. The Seydel Mfg. Co., Forrest and Halliday Sts., Jersey City, N. J., have placed on the market a new finishing soap known as "Astra." It is designed to meet the demand from knit goods bleachers for a white finishing material that will not develop any rancid odor.

Weighting Fallers. A. Lightowler, Manchester, Eng. A device for weighting fallers of spinning mules.

AN IMPROVED STARCH AND WATER MANGLE

The illustration shows a new two-bowl starch mangle of the hook frame design, built by Birch Bros., Somerville, Mass. This mangle is of substantial construction and relied upon for uniform results. If compound levers are not required the mangle can be arranged for rubber cushions, springs or other modifications.

The machine shown in the illustration is driven by tight and loose pulleys, but a friction clutch can be supplied if desired. It can



AN IMPROVED STARCH AND WATER MANGLE

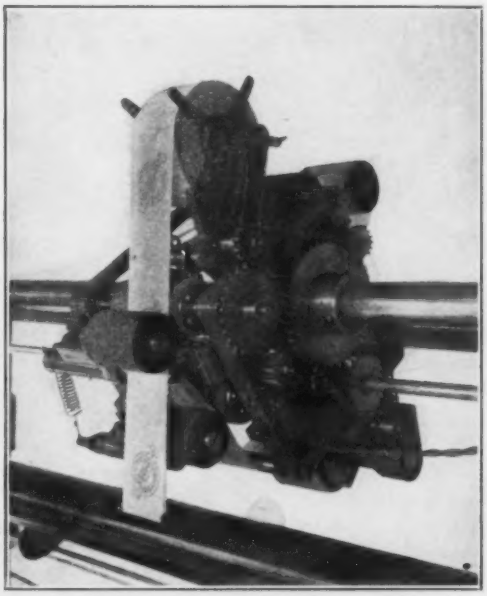
consists of two heavy cast iron frames, fitted with compound levers, hand wheels, oscillating screws and nuts for applying elastic pressure and for raising the upper roll. It is also arranged for dead set. The lower roller is brass 45 inch face and 12 inches in diameter. The upper roll is cast iron covered with rubber, and 14 inches in diameter. This makes a very rigid machine that can be equipped with an immersion box, also tension rails and reel for delivering the goods into boxes, or it can be arranged for batching on rollers.

This machine is used in bleacheries and dye houses for starching, padding and many other purposes. It was on exhibition at the recent Textile Show, where it attracted much favorable attention.

TRADE MARKS AND TRADE MARKING

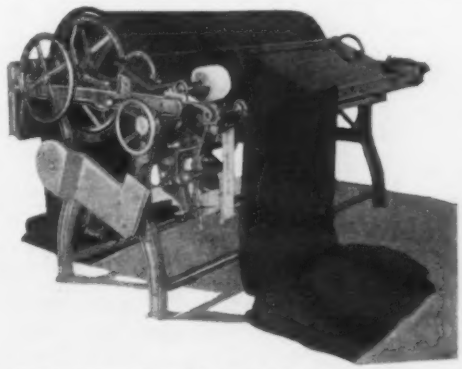
BY FRANK H. MARSTON

Trade marks, if they have any inherent good qualities, improve with age. Some which in themselves have no apparent claim for existence, either in beauty or appropriateness, have become very valuable in the course of time, and by a constant repetition It is well established that the trade mark or trade name of some concerns is by far their most valuable single asset. It would take a



THE KAUMAGRAPH ATTACHMENT

deep pocket from which to draw the estimated worth of "Nabisco," "Pearline," "Kodak," "Beechnut," and many another that might be mentioned. Each succeeding generation, however, seems to find it difficult to profit by the successes and errors of others. The lesson must needs be learned all over again. While publishers and advertising men are constantly pointing out the trade-mark-path to a plethoric bank account, are we not so blinded by the fear that they have an ax of their own to grind, that we fail to see the plain footprints of those who have gone before, who picked golden fruit by the way and yet left just as abundant crops for those who will follow? Trade marks are certainly not a new institution, as reference to the Latin Department of Columbia University, N. Y., will show. In their collection will be found a piece of lead pipe made over 1800 years ago by the Roman plumbing firm of Aurelius Philetianus & Aelia Marciana



SHOWING THE TRADE MARKING ATTACHMENT APPLIED TO THE MEASURING MACHINE

(the latter a woman) and distinctly marked with their names. This pipe was used in the villa of the Quintilius family, on the Appian Way near Rome. Identification marks for one purpose or another can be traced from about the beginning of the Christian era through the years to the present time, leading us to the ranches of South America, Mexico and the West, where the cattle and mustangs are branded with hieroglyphics, up some of our mighty rivers where the spring freshets pile up the logs, into whose bark has been cut the marks indicating to whom they belong; to the present-day market where fresh eggs and candies are stamped with characteristic trade marks.

The value of a trade mark is often not appreciated until revealed through the lack of it by some untoward circumstance. A prominent hosiery manufacturer stated recently that for some twelve or fifteen years, more than half the capacity of his mill had been employed in making a line of goods for one of our largest jobbers, when suddenly and without warning the trade was transferred to another manufacturer. When the horse had been stolen he locked the stable door, and declared that not another pair should leave his mill without his own trade mark, so that his efforts to please the consumer would

mure to his own benefit. This was a good conclusion, but came fifteen years too late. A New York hosiery wholesaler has discovered that for a certain line which he handles, he can get five cents per dozen more for goods stamped with a handsome gold mark than for the same article without it.

It is an excellent thing to adopt an appropriate and suggestive trade mark, but the question then arises how to secure permanent identification of the goods themselves by and with that trade mark. Advertising in the magazines and elsewhere can be made to give its full effect only by reproducing on the article sold, what is seen by the eye on the printed page. Bands and pin tickets are easily stripped off and unscrupulous dealers can call the goods by any name they please; and further can mix in large quantities of inferior stock selling all the goods as that which is widely known. Under such circumstances the more a man spends in advertising his good article, the more money he puts in the pockets of dishonest tradesmen. More than half of the value of advertising is lost without a clear and ineradicable mark. Not a great while ago a certain business promoter was retained to exploit a new fabric and was told that $100,000 was appropriated for the purpose. The plans were laid and not a little money spent in preliminaries, when he discovered that no way had been found to properly trade mark the goods. Rather than risk his reputation by making a serious loss, as he surely thought would be the case, he asked to be released from the task.

In the textile line there are several ways of trade marking. By weaving into the selvage or sewing on a woven label, both more or less expensive. The former is somewhat objectionable, in that it is absolutely impossible to remove the mark where defects of manufacture would make it inadvisable to offer the goods for sale under same brand as the perfect article. The third method is by paint or ink, a cheap method, but offering no field for attractive designs, often proving somewhat of a disfigurement, besides requiring a certain time to dry in order to prevent blur or offset.

Lastly there is the transfer process by means of which all colors including gold and silver may be employed and without restriction as to the style or intricacy of design. In this class of work there is the choice between the wet and dry processes. The "dry transfer" manufactured by the Kaumagraph Co., of New York, possesses all the advantages of the wet system and is free from objectionable features. It provides a method of trade marking that is at once rapid, economical and applicable to any style of goods, rough or smooth, from the coarsest horse blanket to most delicate silks or satins. Any design may be used and any color employed, gold being especially desirable for dark materials and hosiery. Piece goods or garments are marked equally well, and knit or woven fabrics offer no obstacle to this versatile article. The cuts given on these pages illustrate both the machine or automatic method, also the ordinary hand operation. The former shows the Parks & Woolson Kaumagraph attachment, the mechanism of which is manufactured by the Parks & Woolson Machine Co., of Springfield, Vt. The dry transfer paper tape used to accom-

OPERATIVE APPLYING STAMPS BY HAND

plish the impression is made by the Kaumagraph Co. The attachment is first shown by itself and then as applied to a regular measuring machine; in this way there is no additional operation required, but the goods are marked while passing through at the rate of from 40 to 60 yards per minute. This work is accomplished not only in connection with measuring machines, but with several other of the mill operations. These attachments are now in operation in a number of

THE OPERATIVE INSPECTING THE FINISHED PRODUCT

the largest and most progressive mills in the country, and are found to be increasingly valuable. The operative in the other cuts is shown stamping hosiery by the hand method. This is a very rapid operation when an operator becomes skilled, and almost anyone may attain to that by a few hours practice. The lowest priced hands in the mill may be readily taught to turn out a large volume of work with very little experience, and it is surprising how many transfers are applied in this way. Two mills supplied by the above company, both using the hand method, have used transfers enough in the last twelve months, which is laid end to end would reach half way across the continent.

There is, however, a demand for a good low priced hosiery stamping machine. Appreciating this need the Parks & Woolson Machine Co., and Kaumagraph Co., have such a machine in preparation, which will greatly facilitate the application of the dry transfers both as to speed and uniformity. The term dry is not a meaningless term, as it includes the absence of water to secure the mark, and the positive dryness of the impression the instant it is made. Goods piled on top of one another and stamped as fast as the operator can handle them without blur or offset is proof of the correctness of the statement. The new trade mark directory soon to be issued by the publishers of this magazine will show the large place the subject of trade marks occupies in the minds of the people.

THE PRODUCTOGRAPH FOR RECORDING PRODUCTION

The device shown in the illustration is manufactured by Slocum, Avram & Slocum, Inc., 30 Church St., New York, and shows in the office of the superintendent or mill owner the production of any machine or

group of machines in the mill. It indicates the exact time of starting, the stops during the day, the rate of speed and its variations.

it counts the output in any way desired, either by the piece or length.

The mechanism of the Productograph is exceedingly simple, but strong, and is constructed and designed to stand up and work under the most severe conditions. It consists merely of magnets which, when energized, attract needles, which draw lines on the revolving chart, as shown in the illustration. At the same time the magnets actuate counters which record the number of lines drawn. Every tenth line on the chart, or multiple thereof, is shown by a line a little longer than the rest. This greatly facilitates matters if the production of a machine, between any two limits, is desired.

The needle point is made of German silver, while the chart is of lead paper. The line drawn is very distinct and cannot be easily erased. This is a most important point, as ink pens require frequent refilling and much attention. The Productograph can be so arranged that any machine in the mill can be switched into service at any time. Slocum, Avram & Slocum, Inc., is a firm of industrial engineers, the Productograph being an outgrowth of their own needs, as they found they could not get correct records of the production of machinery without an automatic instrument. The Productograph proved so valuable that they decided to manufacture it for the trade.

THE FIRTH BROOMLESS FLOOR SWEEPER

The illustrations show a floor sweeper manufactured by William Firth, 200 Devonshire St., Boston, Mass. This machine is equipped with fans of special design driven by traction like a lawn mower. It removes lint and dust from under and around spinning frames and other machinery. It has been found especially valuable for removing

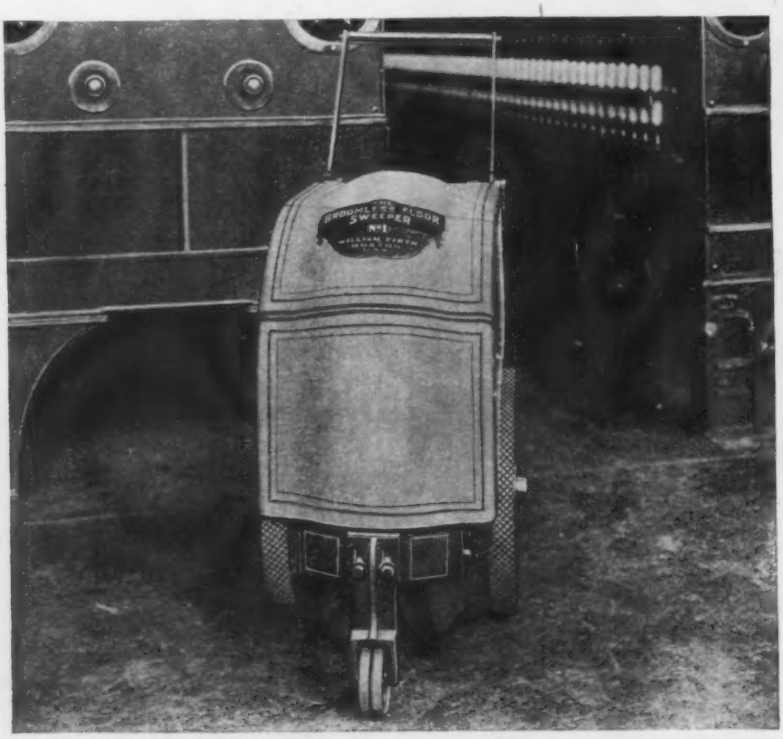


FIG 1. MACHINE FOR FORCING LINT AND WASTE FROM UNDER MACHINERY INTO THE OPPOSITE ALLEY

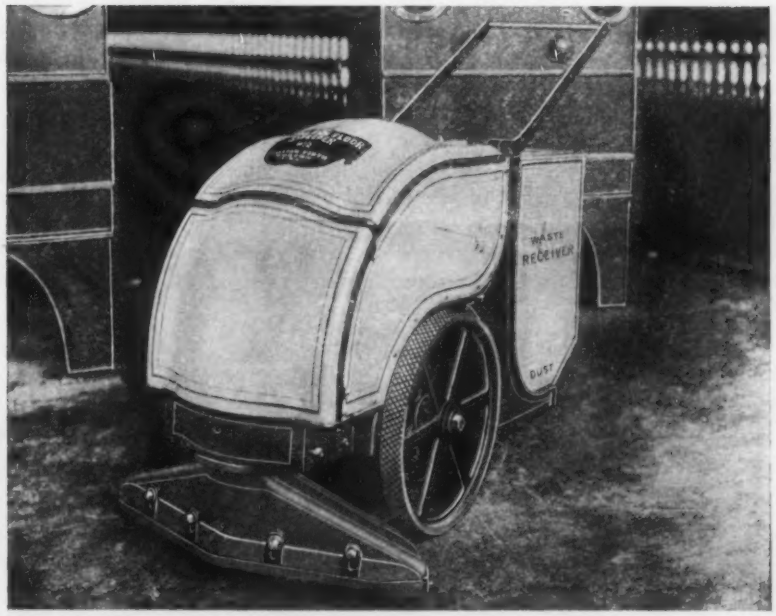


FIG. 2. SWEEPER FOR PICKING UP LINT AND WASTE

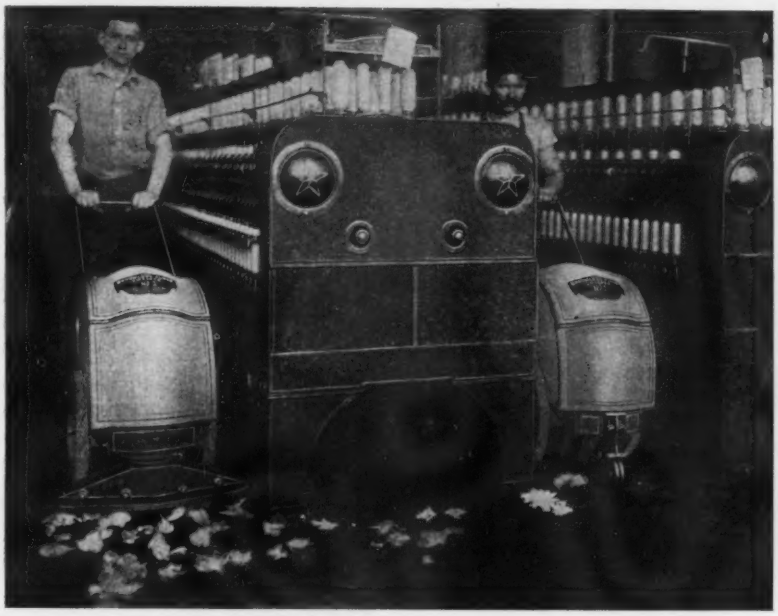


FIG. 3. SHOWING BOTH FORMS OF SWEEPERS

lint and dust from under looms. No power is required except that exerted by the attendant.

There are two forms of these machines. That shown at Fig. 1 gently forces the lint and waste from under the machinery into the opposite alley. The sweeper illustrated at Fig. 2 picks up lint and waste from the floor and deposits it free from the usual matting and broom straws into the receiver where the dust falls from a screen to the bottom. Fig. 3 shows both forms of sweepers. The cotton waste is picked up so clean that it can be sent direct to the picker room to be worked over.

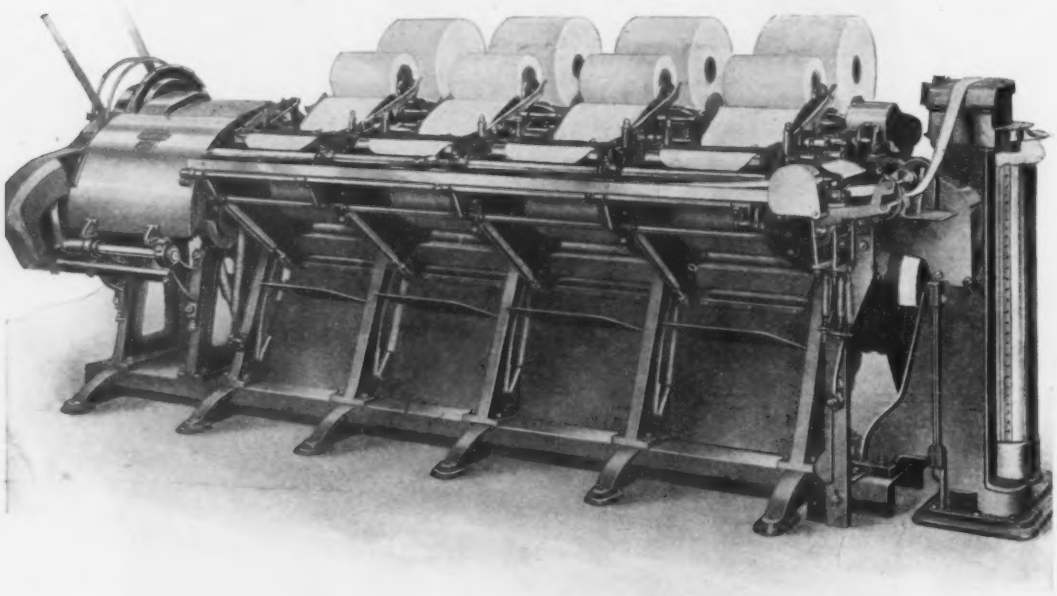
There is a large saving in time and labor as compared with sweeping the floors with brooms. The cost of brooms is eliminated and among the other advantages is dispensing with young and undesirable help, obtaining cleaner floors, cleaner machinery, and cleaner waste. It is adapted for textile mills of all kinds.

The first knitting mill in the United States was built in 1825 at Fisher's Hollow, Pa., and was owned by Thomas R. Fisher.

A NEW COMBING MACHINE

A new cotton combing machine was exhibited by Richards, Atkinson & Haserick, 152 Congress St., at the recent Boston Exhibition. It is built in four heads and on an entirely new principle of cotton combing. The machine is suitable for combing cotton of any length and produces a very even and clear sliver.

The weekly production of the machine is from 900 lbs. on Sea Island cotton up to 1200 lbs. on American and Egyptian cotton. This production is easily taken care of on account of the new principles of combing employed. The nipper and cushion plate rise and fall as in a Heilmann comber, but the detaching and piecing is done by means of a pair of spiral fluted rollers with a reciprocating motion on the Gegeauff principle.



A NEW COTTON COMBING MACHINE

The accompanying illustration will serve to show the strong construction of the machine, the whole mechanism being built upon a heavily ribbed foundation built to secure absolute rigidity. All joints are milled and spring pieces and brackets are dowel-pinned wherever practicable.

Incorporated with this machine is the

Roth aspirator, which serves to keep the machine clean and saves time otherwise occupied in stopping for cleaning. There are several advantages which tend towards labor saving; namely, that there are stop motions to every end of sliver and also for the sliver between the draw box and coiler and for the full can. An alteration in the percentage of waste may be made in less than a minute on account of the improved regulating motion and the waste itself is practically free from long fibers on account of the saving of long stock. On this account and on account of the construction of the patent draw box, an exceedingly strong sliver is made.

This new combing machine is decidedly interesting on account of its many advantages and from the fact of its being a new departure in cotton combing.

CHANGING SHODDY PICKERS FROM PLAIN BEARINGS TO BALL BEARINGS

There is a growing tendency on the part of textile manufacturers to use ball bearings on rag, shoddy and mixing pickers and

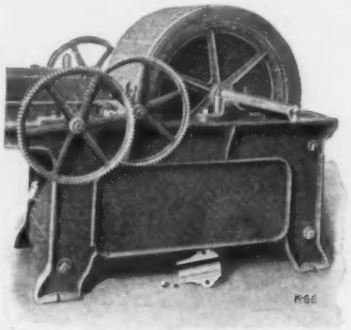


FIG. 1. A PICKER WITH THE GEAR AND DRIVING BELT REMOVED

lumpers. The power saving, increased production, and decreased maintenance cost have brought about the desire for this change. At the recent Textile Show at Boston, several makes of shoddy pickers were shown equipped with ball bearings, and a number of visitors remarked that it was unfortunate that they could not change over their old pickers from plain bearings to ball bearings. This indicates that it is not generally known that ball bearing boxes can be substituted for plain bearings without en-

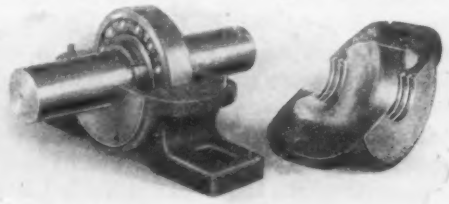


FIG. 2. A BALL BEARING PICKER BOX

tailing any extra machine work or extensive repairs. The bearing boxes for the cylinder shaft of pickers have become stand-

FIG. 3. THE BALL BEARING MOUNTED AND LOWER HALF OF BOX BOLTED ON TO SIDE OF PICKER FRAME

ardized, so that it is now possible to make the change without loss of time and with very little inconvenience. The illustrations

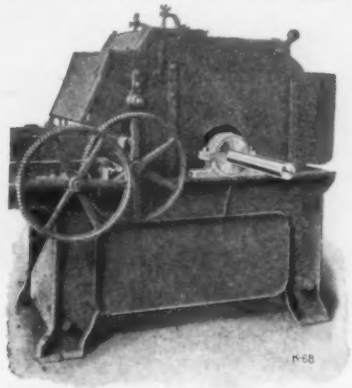


FIG. 4. UPPER HALF OF BOX BOLTED IN PLACE

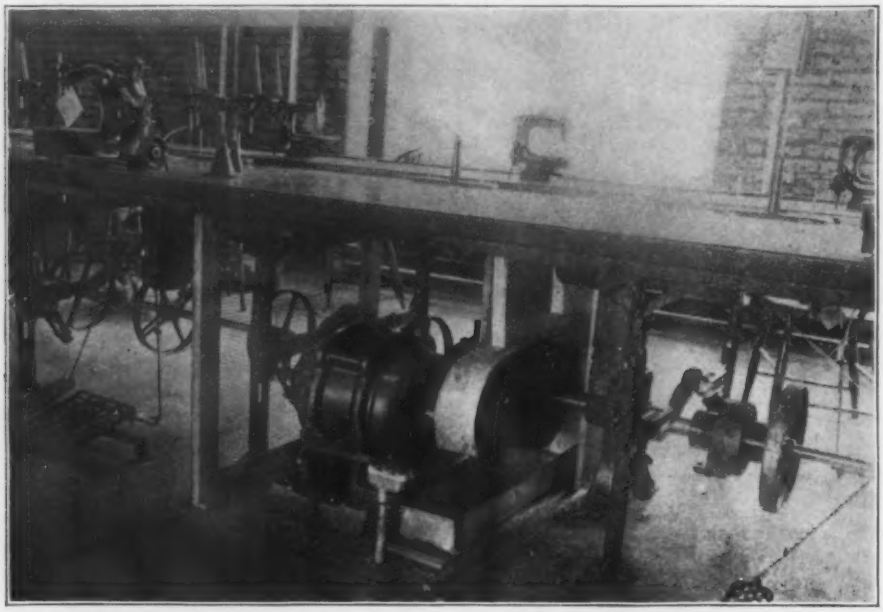
show the several steps in making such a change.

Fig. 1 shows a picker with the gears and driving belt removed from the end of the cylinder shaft, so that it is possible to get at the bearing. The upper half of the old bearing is lying on the floor. Fig. 2 shows the ball bearing picker box with a short length of shaft. It will be noted that the box is divided horizontally so that the upper half can be lifted off without disturbing the shaft. Fig. 3 shows the ball bearing mounted and the lower half of the box bolted on to the side of the picker frame. No machine work is required to install this box. Fig. 4 shows the upper half of the box bolted in place and the cover of the picker put back. It should be noted that with this type of box the picker can be lifted out and put back without disturbing the lower half of the box, and without affecting the setting of the bearing. On account of its simplicity and accessibility this construction appeals to textile manufacturers who want a bearing box free from intricate construction. The two halves of the box are bolted together so that no dirt or foreign substance can enter into the bearing housing, nor can any grease escape from the lubricant chamber along the shaft on account of the housing being sealed on both sides of the bearing.

There have been a number of experiments to measure the amount of power saved by using ball bearings on pickers. Two plain bearing shoddy pickers in a New England mill were recently tested at full load and found to consume 28 h. p. The plain bearings were removed and replaced with S.K.F. ball bearings, when under exactly similar duty these two pickers required 9.84 h. p., indicating a saving of 65 per cent. in power consumption. This saving is not unusual for replacement on old pickers, but on the general run of pickers this saving amounts to from 25 to 65 per cent., depending upon the condition of the machines.

A MORSE CHAIN DRIVE

One of the distinctive features in the new Chalmers Co.'s Mill at Amsterdam, N. Y., is the absence of overhead belts in the finishing and inspection rooms, the stitching tables being driven from electric motors placed under the tables and connected to the line



A MORSE CHAIN DRIVE, SHOWING CONNECTION OF MOTORS WITH LINE SHAFT UNDER STITCHING TABLES

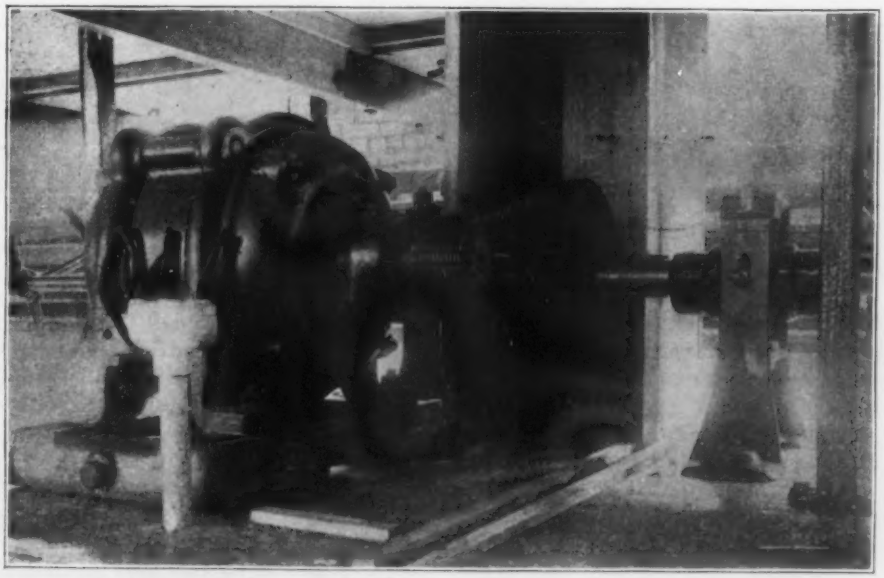
shafts by means of the Morse silent chain drive. The accompanying cuts show the small space required for this form of transmission. It has the advantages of both belt and gear without their disadvantages. It is flexible, yet positive, runs quietly, can be placed on short centers and it is efficient and durable. By its use here the Chalmers Knitting Co. were able to transmit the power from motors to shafts with only 1 1/2 per cent. loss.

The installation of this new factory consists of nine 7 1/2 h. p. drives and seven 5 h. p. drives, the design of drive being the same in both cases. This was done for the sake of having all chains and sprockets interchangeable. The details are as follows:

Power, 5 h. p. and 7 1/2 h. p.
Driver speed, 1,140 r. p. m.
Driven speed, 322 r. p. m.
Driver teeth 15, diameter 2.98 inches.
Driven teeth 53, diameter 10.67 inches.
Center distance, 15 inches.
Chain, 5/8 inch pitch, 2 1/2 inches wide.

The cuts show the compactness of the motor and drive as well as the care taken in designing the screen, which can readily be taken down and put up. The wire netting is of 3/8 inch mesh. A finer mesh gets stopped up by the flyings, which prevent the proper circulation of air necessary to keep the motor cool, while a coarser mesh allows foreign substances to pass through. Suspended from the table and over the chain is a galvanized iron hood, the ends of which are so bent that the oil drippings will fall into the pan on the floor. This takes care of what little grease is thrown from the chain.

Special attention has also been given to having the line shafts rigidly mounted. A small length of 1 15/16 inch shafting carries the driven sprocket and is supported by two pedestal bearings which are securely fastened to the floor. The balance of the line shaft is the standard 1 3/16 inch shafting mounted in the usual way.



THE MORSE CHAIN DRIVE, SHOWING THE SMALL SPACE REQUIRED FOR THIS FORM OF TRANSMISSION

The installation of chain drives in this new factory was made on account of the record made by drives installed in the Blood Knitting Co.'s Mills, a concern closely allied with the Chalmers Knitting Co. The Blood Knitting Co. in March, 1907, installed four drives duplicates of those described above and again in September, 1909, installed four more. None of these drives have required any attention other than lubrication.

The "Silent Chain" may be considered a

flexible rack, designed to keep in proper pitch contact with the sprocket. As the pitch of the chain lengthens, due to wear, the chain creeps farther out on the teeth of the sprockets, taking its true pitch circle. This differentiates it from chains which as they lengthen due to wear become more and more noisy, as the strain is taken by only one tooth at a time. It engages the sprocket wheels over large arcs of their circumference and all that part of the sprockets wrapped by the chain has its teeth in perfect mesh, each taking its share of the load. Thus the pressures per tooth is much less than that found in gearing, and tooth wear is reduced to a minimum in a properly designed chain drive.

The Morse chain has a joint consisting of two pins each securely fastened in sets of links extending in opposite directions. There is no motion between the pins and links and the only friction loss is that caused by the rocking or rolling motion that takes place in the joint as the chain runs on and off the sprockets. When the chain is between sprockets the broad flat surfaces of the pins are in contact and no wear takes place on the rocking surfaces. By the introduction of rolling friction in each chain joint under the Morse patents, the wear that permits lengthening of the chain has been reduced to a minimum, which means prolonged life. The wear is also transferred to the joint pins themselves, which can be replaced and the pitch of the chain restored. Since its introduction ten years ago the silent type of chain drive has gained rapidly in popularity and at the present time there is probably an aggregate of two million horse power transmitted by this drive. Not alone is it used for small drives as described above, but a drive of five hundred horse power capacity is not uncommon and drives transmitting one thousand horse power are in successful operation.

DETECTING ERRORS IN PUNCHING JACQUARD CARDS

A machine for detecting errors in punching jacquard cards has recently been patented in this country. Fig. 1 shows a fragment of the chart which the operator of a jacquard card punching machine follows in operating the machine; Fig. 2 shows the improved jacquard card. The chart, a, employed in connection with the punching of

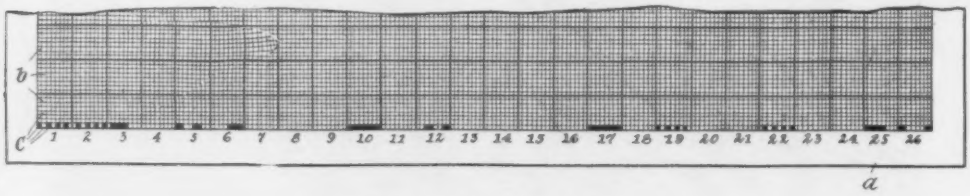


FIG. 1. A FRAGMENT OF A CHART

jacquard cards comprises a rectangular field ruled off in a number of major rectangles, b, and of minor rectangles, c, there being an equal number of the latter in all the major rectangles. Each complete horizontal row of minor units corresponds to the complete working field or area of a jacquard card. For indicating the units in the working field of the cards that are to be punched, certain of the minor units in such row of the chart are distinguished from the rest, usually by being filled in by the designer with color, the remaining minor rectangles being left blank, Fig. 1. The operator follows the design or pattern reading across the pattern in the same direction, usually from left to right, and taking up the successive rows of minor units consecutively. The cards, d, to be punched have as many crosswise rows, e, of units as there are major rectangles in a horizontal row of major rectangles in the pattern. The number of units to a row in the card is equal to the number of minor rectangles in the width of each major rectangle in the design. The card is fed endwise through the card punching machine step by

step. During each pause the operator presses those keys of the machine which correspond to the colored minor rectangles of the design, to set the proper punches in operative condition, and then punches the card. This is done until all the rows of the units, e, in the cards have been punched, each row corresponding to one of the sections, equal to the width of each major rectangle, of a horizontal row of minor rectangles. A new card is then placed in the machine, the operator following the next row of minor rectangles above that last followed.

improved method the obverse face of the card, d, is provided with suitable means for defining the rows, e, of units. The card is treated so that any unit may be quickly and accurately located with respect to the corresponding minor rectangle or unit on the design. For example, the columns or rows of units, e, Fig. 2, are provided with marginal parallel lines, f. The rows are further designated by consecutive indices, such as numerals in each instance, as shown. The first set of indices, viewing the card as shown in Fig. 2 (the position for comparison

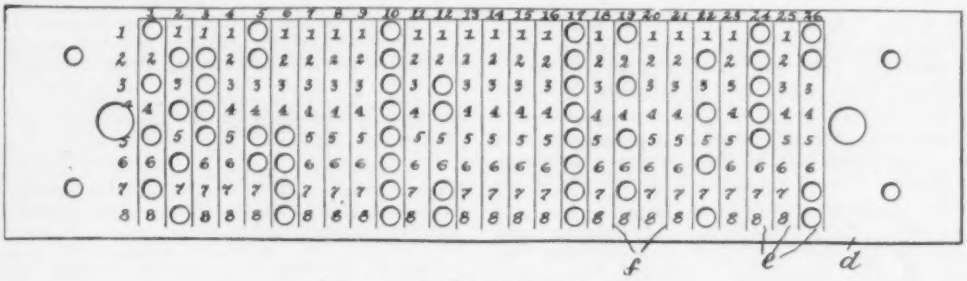


FIG. 2. AN IMPROVED JACQUARD CARD

This operation is extremely tedious, and even the most skilful of operators is likely to make mistakes; further, although the punched cards are usually carefully inspected before they are incorporated in the jacquard machine, it is not infrequent that such mistakes are overlooked until after the cards have gone into use in the weaving operations, when the resulting errors appear in the weave.

Blank jacquard cards have been provided with no means to assist in the inspection after they have undergone the punching operation, in consequence of which it is common to find defects in the woven fabric so that either the fabric stands defective in quality or else the weaving operation must be stopped and corrected and the fault in the card corrected. The verifying of the card is a difficult task owing to the absence of any means for guiding the eye in its comparisons, the seemingly indiscriminate placement and disorderly spacing of the punched openings making it extremely difficult for one well practised in the art to accomplish the verifying of the card without error. By the

with the design, a) read from left to right and each of the groups of indices in the second set read from the top down. In place of the guideless card heretofore employed, a card reveals substantially at once and without inaccuracy any faults in the punching.

Every row of units is clearly indicated, whether punching has occurred. Every row of units has its distinguishing index, making it unnecessary for the person verifying to rely on the unreliable expedient of marking with one hand the row being inspected while he marks with the other hand the row-section of minor rectangles on the chart with which the card row should agree. Each card row, e, having its units consecutively designated by indices, the operator can see at a glance if the row has been wrongly punched, and what unit or units it is that are at fault.

The United States imported 1,105,958 pounds of combing wool from Canada during the 12 months ending December, 1913, valued at $251,896, as compared with 735,400 pounds valued at $168,912 in 1912, and 173,726 pounds valued at $43,747 in 1911.

Personals

Edgar N. Taft of Bridgeton, R. I., was nominated president of the National Association of Woolen and Worsted Overseers at their thirty-second semi-annual meeting held at Rocky Point, R. I. Mr. Taft has been first vice-president of the organization for the past year.

Carl M. Klebart, overseer of weaving at the Oakland Manufacturing Co., Reisterstown, Md., has resigned on account of ill health.

Bernard D. Connell has accepted the position of overseer of spinning at the Silurian Mills, Newton Lower Falls, Mass.

J. Arthur Lapraik has accepted the position of overseer of dyeing at the Sawyer, Regan Co., Dalton, Mass. He was formerly employed at the Faulkner Manufacturing Co., North Billerica, Mass.

Chester C. Wood, assistant superintendent at the Contoocook Mills Corporation, Hillsboro, N. H., has severed his connection with that company.

Peter A. Costello, overseer of finishing and dyeing at the Akers & Taylor Manufacturing Co., Charlton City, Mass., has resigned. He is succeeded by C. C. Jones.

Arthur L. Emery, formerly overseer of spinning at the Palmer Mill of the Otis Co., Three Rivers, Mass., has accepted a position with the New England Cotton Yarn Co., Taunton, Mass.

Raymond G. Emery has accepted the position of overseer of spinning at the Palmer Mill of the Otis Co., Three Rivers, Mass.

R. Villani, overseer of dyeing at the Sawyer, Regan Co., Dalton, Mass., has resigned his position with that company.

Gustav Weder has accepted the position as overseer of night carding at the National Woolen Co., Cleveland, O.

William Dailey, overseer of dyeing at the Aetna Mill, Watertown, Mass., has severed his connection with that company.

C. A. Hueber, overseer of spinning with J. Broadbent & Son, Unionville, Conn., has severed his connection with that company.

Thomas Frusher, overseer of dyeing at the U. S. Worsted Co., Lawrence, Mass., has tendered his resignation.

P. J. Keenan, overseer of carding at the Louisville Woolen Co., Louisville, Ky., has resigned his position with that company.

Charles S. Knight has accepted the position of overseer of carding at the Philadelphia Felt Co., Frankford, Philadelphia, Pa.

Ernest J. Hill has accepted the position of overseer of carding at the Piscataquis Woolen Co., Guilford, Me.

E. Weissner has accepted the position of superintendent at the Norristown Woolen Co., Norristown, Pa. He was formerly employed at the U. S. Worsted Co., Lawrence, Mass.

Sam Leach has been appointed superintendent of the Barnai Worsted Co., Woonsocket, R. I. Mr. Leach was formerly designer at the Waterman Worsted Co., Putnam, Conn.

Michael McCurn has accepted the position of overseer of carding at the Darling Woolen Mills Co., Holliston, Mass. He was formerly employed at the Locustville Woolen Co., Hope Valley, R. I.

Romeo Mailly has accepted the position of fixer on Cooper machines at the Thomas Dalby Co., Watertown, Mass.

J. H. McCusker, overseer of spooling and warping at the Sagamore No. 3 Mill, Fall River, Mass., has resigned to accept a similar position with the American Linen Co., same city.

Paul G. Wetstein, overseer of weaving at the Cocheco Woolen Manufacturing Co., East Rochester, N. H., has severed his connection with that company.

Robert J. Bailey, overseer of the cloth department at the Berkeley Mills, Berkeley, R. I., has tendered his resignation after fifty years spent in various cotton mills.

J. A. Bennett, superintendent of the Windsor Print Works, North Adams, Mass., has sailed for his former home in England for an extended vacation. He will be accompanied by his wife.

John ONeil has accepted the position of overseer of the spooling, warping and drawing-in departments at the Sagamore No. 3 Mill, Fall River, Mass.

J. R. Killian, recently employed at the Patterson Mill, China Grove, N. C., has been transferred by the management to superintendent of the Cannon Mills No. 1, 2 and 3 at Concord, N. C.

C. R. Deaton has been promoted to the position of night overseer of carding at the Jennings Mill, Lumberton, N. C.

W. F. O'Pry has accepted the position of overseer of spinning at the Chadwick-Hoskins Mill No. 3, Charlotte, N. C. He was formerly employed at the Dan River Mill, Schoolfield, Va.

J. M. Jordan has accepted the position of overseer of spinning at the Putnam Mill & Power Co., Eatonton, Ga. He was formerly employed at the Union Cotton Mill, Lafayette, Ga.

F. A. Bland has succeeded S. P. Bland as over-

seer of weaving at the Inverness Mill, Winston-Salem, N. C.

E. B. Massey has accepted the position of overseer of weaving and slashing at Cherokee Falls Manufacturing Co., Cherokee Falls, S. C.

F. C. Hall has accepted the position of assistant superintendent at the Dan River Mills, Danville, Va. He was formerly employed as superintendent at the Lumberton Cotton Mill, Lumberon, N. C.

Edward P. Nichols, treasurer of the Great Falls Manufacturing Co., Somersworth, N. H., has resigned his position with that company and is succeeded by Howard S. O. Nichols.

Samuel W. Wilkinson, treasurer of the Stafford Mill, Fall River, Mass., has tendered his resignation. At a meeting held by the directors, Charles B. Luther was appointed treasurer temporarily.

It is reported that David Hannam Thornton has been appointed to a responsible position in charge of the Bradford Dyeing Association's plant at Bradford, R. I.

Edward R. Ballou has been appointed agent of the Lowe Manufacturing Co., Huntsville, Ala. He comes from Boston, Mass.

Clifford J. Alpaugh, for the past thirty years connected with the American Thread Co., Willimantic, Conn., has been made general superintendent of the finishing of all the plants of the company.

Victor Herkeys has been appointed overseer of dyeing at the Ounegan Mill, American Woolen Co., Old Town, Me. He comes from North Vassalboro, Me.

John Ormiston, overseer of dyeing at the Ounegan Mill, American Woolen Co., Old Town, Me., has resigned to accept a similar position with the Rochdale Mill, same company, Rochdale, Mass.

Forrester E. Jewett has been appointed superintendent of the warping and dressing departments at the Amoskeag Manufacturing Co., Manchester, N. H.

George Mead, overseer of the shearing department at the Assabet Mill, Maynard, Mass., for the past thirty-three years, has resigned his position with that company.

John Magner has been appointed overseer of dyeing at the Squamlake Woolen Co., Ashland, N. H. He comes from Dexter, Me.

James Horsfall, overseer of dyeing at the Squamlake Woolen Co., Ashland, N. H., has resigned his position with that company.

William J. Rollinson has accepted the position of overseer of finishing at the Akela Mill, Pascoag, R. I. He was formerly employed at the Waucantuck Mill, Uxbridge, Mass.

A. T. Marshall, master mechanic at the Mianus Manufacturing Co., Coscob, Conn., is superintending the installation of machinery in their branch mill at Norwalk, Conn. The machinery is being moved from Derby, Conn.

James Kirkman has accepted the position of overseer of carding at the branch mill of the Mianus Manufacturing Co., at Norwalk, Conn.

John McKenna, overseer of the cloth department at the Valley Queen Mill, B. B. & R. Knight, River Point, R. I., has accepted a similar position at the Royal Mill of the same company at River Point.

Peter Goff has been appointed overseer of the cloth department at the Valley Queen Mill, B. B. & R. Knight, River Point, R. I.

Clarence Ellis, overseer of the cloth department at the Royal Mill, B. B. & R. Knight, River Point, R. I., has severed his connection with that company.

D. Sutcliffe has been promoted from superintendent of Mill No. 1 to general superintendent of the Deep River Mills, Randleman, N. C.

D. R. Bullock has been appointed assistant superintendent of the Dillon Mills, Dillon, S. C.

E. W. Netherland has accepted the position of overseer of carding at Mill No. 1 of the Fort Mill Manufacturing Co., Fort Mill, S. C. He was formerly employed at the Oconee River Mills, Dublin, Ga.

D. A. Jolly has accepted the position of overseer of weaving at the Lanett Cotton Mills, Lanett, Ala.

Sandy Barrett has accepted the position of overseer of weaving at the Southside Mills, Lincolnton, N. C.

H. S. Berry has accepted the position of overseer of the cloth room at the Aldora Mills, Barnesville, Ga.

T. N. Lumley, superintendent of the Wennonah Cotton Mills, Lexington, N. C., has resigned his position with that company.

John Collie has been appointed superintendent of the South Bend Woolen Co., South Bend, Ind. He was formerly employed at the Wallace & Smith Blanket Mills, Laporte, Ind.

William Fisher, superintendent of the South Bend Woolen Co., South Bend, Ind., has resigned his position with that company to start in the woolen business with others in the near future.

George F. Hussey has reentered the employ of the Oakland Manufacturing Co., Sykesville, Md., as overseer of dressing and spooling.

Arthur R. Sharp, treasurer of the Sharp Manufacturing Co., New Bedford, Mass., and also treasurer of the Hamilton Manufacturing Co., Lowell, Mass., has succeeded William H. Bent as treasurer of the Mason Machine Works, Taunton, Mass. Mr. Bent has been appointed vice-president of the company.

Thomas Thomas, formerly superintendent of the Orr Felt & Blanket Co., Piqua, O., has succeeded F. W. Briggs as superintendent of the Pioneer Mills, Pittsfield, Me.

Henry Fitzgerald has accepted the position of

designer and assistant superintendent at the Garland Woolen Co., Staffordville, Conn.

James Harper has succeeded Thomas Morrow as superintendent of the Franklin Mills Corporation, Franklin, Mass. He comes from Milford, N. H.

Timothy Sullivan, superintendent of the Stafford Mill, Fall River, Mass., has been appointed one of the directors at a meeting recently held and will succeed the late Robert Henry.

Alexander G. Rodger has accepted the position of overseer of dressing at the Ray Mills, American Woolen Co., Franklin, Mass. He was formerly employed at the Stillwater Worsted Co., Harrisville, R. I.

Fred W. Millway, for ten years master mechanic at the New England Cotton Yarn Co., Mills 9 and 10, New Bedford, Mass., has resigned his position with that company.

Lincoln Robinson, overseer of the carding department at the Corr Manufacturing Co., East Taunton, Mass., has resigned his position with that company to accept a similar position with the Pocasset Mill, Fall River, Mass.

James T Shirley has accepted the position of master-mechanic at the Shuttleworth Brothers Co., Amsterdam, N. Y. He was formerly employed at the Dwight Manufacturing Co., Chicopee, Mass.

Thomas Dawson, who has been employed at the Waldrich Bleachery, Delawanna, N. J., for the past fourteen years, in connection with the starching department, has severed his connection with that company.

Harry Spurr has accepted the position of assistant superintendent at the Cleveland Worsted Mills Co., Odsonia Mills, Falconer, N. Y.

Thomas O'Neill has accepted the position of overseer of weaving at the Nottingham Mill, Providence, R. I. He comes from River Point, R. I.

Ellis Gurry has accepted the position of overseer of carding at the Nottingham Mills, Providence, R. I. He was formerly employed at the Dana Warp Mills, Westbrook, Me.

Timothy Sullivan has accepted the position of second hand of the carding department at the Nottingham Mill, Providence, R. I.

John Hartley has accepted the position of overseer of dyeing at the Sayles & Jenks Manufacturing Co., Warren, Mass. He was formerly employed at the Reliable Dye & Bleach Works, Cleveland, O.

Thomas F. Hanley has accepted the position of overseer of weaving at the Locustville Woolen Co., Hope Valley, R. I.

Edward Adams has accepted the position of overseer of carding at the Locustville Woolen Co., Hope Valley, R. I. He was formerly employed at the Davis & Brown Woolen Co., East Killingly, Conn.

W. F. Ambach has accepted the position of overseer of finishing at the Beebe-Webber Co., Holyoke, Mass. He was formerly employed at the Scotia Worsted Mills, Woonsocket, R. I.

Fred Donley has accepted the position of overseer of sewing at the Waucantuck Mill, Uxbridge, Mass.

James Marcure, overseer of weaving at the Nottingham Mills, Providence, R. I., has resigned his position with that company.

J. E. Mehaffey has accepted the position of overseer of the cloth room at the Caraleigh Mill, Raleigh, N. C.

A. W. Faris has accepted the position of overseer of spinning at the Franklinville Manufacturing Co., Franklinville, N. C.

E. H. Bost has accepted the position of overseer of weaving at the Lancaster Cotton Mills, Lancaster, S. C. He was formerly employed at the Jackson Fibre Co., Bemis, Tenn.

J. H. Hull has accepted the position of overseer of weaving at the Arcade Mills, Rock Hill, S. C.

C. W. Parrott has been appointed superintendent of the Katrine Manufacturing Co., Fork Shoals, S. C.

Walter S. Mitchell, for the past thirty-two years employed at the Pepperell Manufacturing Co., Biddeford, Me., has been appointed agent of the Chicopee Manufacturing Co., Chicopee Falls, Mass.

At a meeting of the directors of the Granite Cotton Mills Corporation, Fall River, Mass. which was held on April 27, Benjamin S. C. Gifford was elected president of this company.

Alexander M. Nicholson, designer at the Allen Woolen Mills, Rochester, N. Y., has severed his connection with that company.

George R. Coster, overseer of dyeing for the past six years at the Sayles & Jenks Manufacturing Co., Warren, Mass., has accepted a similar position with S. Slater & Sons, Webster, Mass., succeeding William Hampshire.

John Reed, overseer of finishing at the Pacific Print Works, Lawrence, Mass., has resigned to accept a similar position at Wappinger's Falls, N. Y.

John E. Long has accepted the position of overseer of carding at the Orr Felt & Blanket Co., Piqua, O. He was formerly employed at the Adams Woolen Co., Adams, Mass.

James W. Williams has accepted the position of overseer of carding at the Adams Woolen Co., Adams, Mass. He comes from Clayville, N. Y.

A. L. Collins, overseer of finishing at the Esmond Mills, Esmond, R. I., has resigned his position with that company. He is succeeded by C. O. McGarrett, who was formerly boss napper at this mill.

James Thompson has been promoted to the position of overseer of napping at the Esmond Mill, Esmond, R. I. He was formerly second hand in this department.

DEATHS.

Hon. W. Scott Libbey, treasurer of the Libbey & Dingley Co., Lewiston, Me., died suddenly at his summer home in Wayne, Me., at the age of 63 years. In the death of Mr. Libbey, Lewiston and Auburn, Me., loses one of their ablest and most energetic business men.

Edward Dorsey, president and general manager of the Elliott Manufacturing Co., Manchester, N. H., died at his home in that city after a short illness of pneumonia.

Fred R. Smith, secretary and treasurer of the Palmetto, Palmetto, Ga., died recently in that city. His widow and four children survive him.

John W. Hussey, for a number of years connected with the stock department for Joseph Benns & Sons, Inc., Greystone, R. I., died suddenly of heart failure after leaving the office of the mill where he had gone to apply for reinstatement after a brief illness. Mr. Hussey was president of the Greystone division of the U. S. Volunteer Life Saving Corps. He was 42 years of age and leaves a widow and four children.

Frederick Oliver, a foreman at the Belding Silk Mill, Northampton, Mass., for the past eighteen years, died at the Dickinson Hospital after an illness of several weeks, at the age of 72 years. Mr. Oliver had been employed for a number of years at the McCallum Hosiery Co. Five sons survive him.

Oscar F. Chase, a pioneer woolen manufacturer of Webster, Mass., died at his home in that city as a result of a shock sustained several years ago. Mr. Chase, with his father, John Chase, built what is known as the Chase Mill, now owned and operated by the American Woolen Co. The mill was built in 1880. He was regarded as one of the best mill men in that section of the country and had retired from active business twenty years ago. His wife and two daughters survive him.

Robert Dornan, president of the Dornan Bros., carpet manufacturers, Philadelphia, Pa., died at his home in that city at the age of 70 years. He was president of the Kingston National Bank for several years, director of the United Security Co., director of the American Security & Trust Co., and a trustee of the Penn Mutual Life Insurance Co. His wife and one daughter survive him.

Dwight M. Church died at his home in Willimantic, Conn. He was born Sept. 26, 1837, and was the inventor of the ready wound bobbin now extensively used by the American Thread Co. of that city. He also was the inventor of a number of useful contrivances from which he received royalties. His wife and one daughter survive him.

Charles G. Pitzold, for a number of years designer at the Arlington Mills, Lawrence, Mass., and also connected with a number of mills in Providence, R. I., died at Asheville, N. C., at the age of 40 years. Mr. Pitzold had gone South a few months ago for his health, having been afflicted with a serious throat trouble. His wife and five sons survive him.

Charles E. Cromwell, for the past ten years overseer of carding at the Nottingham Mill, B. B. & R. Knight Co., Providence, R. I., died at the Rhode Island hospital. The cause of his death was heart trouble. Mr. Cromwell had been an overseer for the past twenty-three years and was born in Jewett City, Conn., in 1848. He is survived by his wife, one son and a daughter.

Joseph W. Congdon died at his home in Passaic, N. J., of Bright's disease after a long illness. Mr. Congdon was born in New York, Nov. 26, 1844. He became vice-president of the Phoenix Silk Co. of Paterson, N. J., and four years later was elected president of this company. He was president of the Silk Association of America for three years, and was also a member of the Board of Aldermen for a number of years. One daughter survives him.

Lees Mallinson died at his home in Holyoke, Mass., at the age of 50 years. Mr. Mallinson was considered a first class woolen and worsted finisher, having been employed at the Coronet Worsted Mills, Mapleville, R. I., for a number of years and also at Stafford Springs, Conn. At the time of his death he was overseer of finishing at the Beebe-Webber Co., Holyoke.

D. P. Scribner died at his home in Waltham, Mass., after a lingering illness. Mr. Scribner was for a number of years superintendent of the Yantic Woolen Mills. Previous to that time he was employed at the Aetna Mill, Watertown, Mass. He was highly esteemed by all who knew him.

David Dudley Felton, a prominent citizen and one of the best known men of Manchester, N. H., died at his home in that city. He was born in Eden Prairie, Minn., Dec. 27, 1861. Since the death of his father in 1907 he had the entire management of the S. A. Felton & Sons Co.'s plant, which manufactured mill brushes. He was a director of the Manchester National Bank, People's Gas Light Co., and a member of several clubs. In politics he was a Republican. His widow and one son survive him.

Edward R. Blanchard, manager of the Glenlyon Dye Works, Phillipsdale, R. I., died at his home in Providence, R. I., at the age of 71 years. He was manager of this company for the past fourteen years. Mr. Blanchard was a member of many organizations, among which are the Arkwright Club of Boston, Chamber of Commerce of Providence, New York Club, Providence Art Club and the Rhode Island School of Design. His widow, one son and two daughters survive him.

Isaac W. Kilbourn, manager of the Kilbourn Knitting Machine Co., of New Brunswick, N. J., died very suddenly on April 19th from heart trouble. Mr. Kilbourn was a well known inventor and manufacturer and had a wide acquaintance in the knitting field. He is survived by a wife and two daughters.

Charles E. Stuart, treasurer and general manager of the Imperial Underwear Co., Piqua, O., died at his home in that city. He is survived by a widow.

New Publications

Any work noticed under this heading can be obtained, postage or express charges free, by sending the price listed to Lord & Nagle Company, 144 Congress St., Boston, Mass. A catalogue of textile books in the English language will be sent free on application.

The Science of Knitting; by Ernest Tompkins; 330 pages, 4 by 7 3/4; John Wiley & Sons, New York. Price $3.00.

This volume would under any circumstances be an important addition to the literature relating to knitting, but its importance is greatly increased by the dearth of reliable and well arranged books relating to the knitting branch of the textile industry. The author is well known in the trade as one possessing a thorough knowledge of both the practice and theory of knitting. He began work on this volume several years ago, the intention then being to make it a proprietary publication for the Wildman Mfg. Co. As stated in the preface the book soon developed beyond the scope of such a work, and was converted into a scientific treatise on knitting, advertising having been excluded. As finally published it is an exceedingly valuable handbook for all connected with the manufacture of knit goods. An enumeration of the many topics treated in the volume would occupy far more space than is available for this notice of the book. Following are some of the principal subjects under which the contents are classified: Yarn Numbering and Yarn Calculations, Elements of Knitting, Formulas for Ribbed Fabrics, Width of Tubular Goods for Different Numbers of Needles and Yarns, Width of Fabrics from Different Machines, Production of Circular Knitting Machines, Weight of Goods per Square Yard, Twist in Knit Fabrics, Set, Space Allotment in Knitting Mills, Knitting Machine Gauges, Range of Fabrics from the Same Gauge or Cut, Burs, Spring Needle Latch Wheel, Tuck Stitch Figures, Vertical Patterns in Latch Needle Work, Cams, Inserting Needles in Ribber, Take-up, Locating Sources of Trouble in Ribbed Knitting, Stitch Adjustment, Economies of Knitting, Figure Designing with Pattern Wheels, Theory of Knit Fabrics, Ratio and Proportion, Weights and Measures, Mensuration, Miscellaneous Notes on Belting. The volume is of convenient size for the pocket, is well bound and printed, the typographical arrangement being a model for handbooks of this kind.

The "American" Buyers' Directory; 150 pages, 5 1/2 by 9; The American Carpet and Upholstery Journal, Philadelphia, Pa.

This directory is a continuation of Kendrick's Directory of the carpet and upholstery industries, which has been published for thirty years. It gives a classified and alphabetical list of manufacturers and jobbers of carpets, rugs, mattings, linoleums, upholstery goods and curtains, also a directory of the mills manufacturing these products, giving the various brand names and trade marks. There is a glossary of Oriental rug terms and various tables that will prove useful to the buyer of all kinds of floor coverings and furnishings.

Textile Postcards; H. R. Carter, textile engineer, 28 Waring St., Belfast, Ireland.

This is a series of sixteen souvenir postcards illustrating the raising and manufacturing of flax. The scenes include the following: Sowing the seed, the flax plant, pulling flax, grassing the flax straw, flax retting, flax scutch mill, scutched flax, flax sorting, flax preparing, tow carding, flax spinning room, yarn reeling, winding room, linen weaving shed, grass bleaching linen, beetling linen, hemstitching and making up.

The Various Processes of Finishing Woolen, Worsted and Half Wool Goods (Die verschiedenen Appreturverfahren der Streighgarn, Kammgarn und halbwollenen Waren); by W. Jansen, director of the Weaving School at Lambrecht; 361 pages, 5 1/2 by 9; Hausdorff & Co., Goeschenstr. 3, Leipzig, Germany. Price $2.

Manufacturers and finishers of woolen, worsted and half wool goods will find in this volume much valuable information regarding the various methods of finishing wool and half wool goods, the contents being arranged under the following heads: Half wool goods, sizing, finishing presidents, blankets, capes and head coverings, pure wool flannels, woolen cheviots, meltons, Loden, waterproofing fabrics, army cloths, piece dyed goods, wool dyed cloth, billiard cloth, bleaching wool goods, woolen dress goods, woolen pile fabrics, doe skins, woolen sateens, kerseys, elastic fabrics, hunting cloths, tricot long and tricot cross, tubular knit fabrics for military use, beavers and similar goods, shear patterns, buckskins, zibalines, ratines, loop finish, astrakhan, Moutennes, water wave finish to resemble fur, mohair plush, woolen plush and velours, fancy back overcoating, piece dyed worsteds, Greiz-Geraer dress goods, woolen and worsted mixed dress goods in light colors, worsted dress goods in light colors, vigoureaux worsted dress goods, piece and wool dyed kerseys with worsted warp and woolen filling, wool dyed worsteds, piece dyed worsted cheviots, woolen dyed worsted cheviots, water for finishing, the manufacture of textile soaps, removing spots from wool goods, making specking ink. In addition to the description of the finishing processes, the author gives details regarding the weaves used and the fabric construction for the various classes of goods. The text is in German.

The Chemical Technology of Textile Fibers (Chemische Technologie der Gespinstfasern); by Dr. Karl Stirm, chemist at the Aachen Textile School; 410 pages, 7 by 10; Gebrueder Borntraeger, Berlin, W., Germany. Price $5.

This volume treats of the production of textile fibers, their chemical and physical characteristics, the preparation of the raw material and of the goods for dyeing and printing. The contents are

arranged under the following heads: Mineral fibers, vegetable fibers, animal fibers, artificial products, dyeing and printing fibers. The book contains fifty-four illustrations, twenty-two of which are original micro-photographs. The text is in German.

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Preliminary Operations of Weaving; by H. Nesbitt; 388 pages, 5 by 8 1/2; Emmott & Co., Ltd., 65 King St., Manchester, Eng. Price, $2.50.

This is a reprint of a series of articles that have appeared in the Textile Manufacturer. The contents are arranged under the following heads: Varieties of Yarn; The General Routine of Textile Manufacture; Systems of Preparing Grey or Plain Warps; Knots; Beam Warping; Cylinder-Drying Slasher or Tape Sizing; Air-Drying Slasher or Tape Sizing; Air-Drying Slasher or Tape Sizing Machines; Looming, Drawing-in, Twisting-in, Tying-in.

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The Chemistry of Dyeing; by John K. Wood; 74 pages, 4 1/2 by 7 1/4; D. Van Nostrand & Co., 25 Park Pl., New York. Price, 75 cents.

The author explains that his aim in writing this book was to give a concise and connected account of the development of the dyeing processes during the past thirty years. The contents are arranged under the following heads: The Chemical Composition and Properties of the Textile Fibers, Dyes and Their Properties, The Nature of the Dyeing Process.

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A Cotton Fabrics Glossary; 738 pages, 5 1/2 by 8; Frank P. Bennett & Co., Boston, Mass. Price $5.

This is a reprint of a series of articles that have been published in the American Wool and Cotton Reporter and consists of a description of the construction and use of cotton fabrics. The description of each fabric includes an account of the raw material, the kind of yarn, the loom construction, method of dyeing and finishing and the uses to which the fabric is put. There are illustrations of the various fabrics, also the weave drafts, the whole forming a useful book of reference for manufacturers, mill superintendents, overseers and merchants, or in fact any one connected with the cotton trade.

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Dockham's American Report and Directory of the Textile Manufacturers and Dry Goods Trade; Dockham Publishing Co., Boston, Mass. Price $6.00.

The 24th edition of this old-established publication has been received and contains its usual attractive features. It gives under various classifications reports of the textile manufacturing industry of the United States and Canada, also lists of concerns in allied lines such as dealers in textile raw materials and selling agents and importers of textiles. The book is well printed and bound and gives evidence of the usual careful preparation.

BUSINESS LITERATURE

Gasoline Storage Outfits; Wm. B. Scaife & Sons Co., Pittsburgh, Pa.

An illustrated pamphlet describing and illustrating the Scaife long distance gasoline outfits, long distance pumps, fill pipes, welded gasoline tanks, direct lift storage outfits, pumps for direct lift storage outfits and garage air storage tanks. These outfits have successfully passed the severe tests and requirements of the Underwriters Laboratories and have also been endorsed and listed by the National Board of Fire Underwriters.

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The Belting Manual; The Graton & Knight Mfg. Co., Worcester, Mass.

The Graton & Knight Mfg. Co. have recently published a treatise on belting and the transmission of power, containing 90 pages of practical belting information. It tells how to install, lace and care for belting, how to make belts endless, how to find the width, length, speed and horse power of belting. It is a substantially bound book for convenient use and of handy size. A copy may be had free by any manufacturer, superintendent, foreman or master mechanic, either by filling out the coupon in their advertisement or by mentioning the Textile World Record and stating the position held in the mill.

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Dyeing Machines; The John H. Giles Dyeing Machine Co., Taunton, Mass.

Several illustrations of the Giles dyeing machines and some of the mechanical features showing their superior make. These illustrations show the fifty stick cast iron spider skein dyeing machine, the fifty stick all bronze skein dyeing machine, and the twenty-five stick all bronze wool and worsted skein dyeing machine. A complete illustrated catalog will be sent on application to the Giles Dyeing Machine Co.

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Machinery for Dyeing, Bleaching and Scouring; The Klauder-Weldon Dyeing Machine Co., Amsterdam, N. Y.

A 32-page catalog describing and illustrating the machines for dyeing, bleaching and scouring manufactured by this concern. These machines include skein machines for woolen, worsted, slubbing, cotton, mercerized cotton, silk and artificial silk. Raw stock machines for wool, cotton, waste and rags. Garment machines for hosiery, underwear, hats, knit cloth, etc. Also tubs of wood and iron, and special machines for sulphur colors and carpet yarns. This booklet also contains measurements and other data of use to manufacturers in the selection of the particular machines best suited to their needs.

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Percentage Tables; The Cassella Color Co., 182 Front St., New York.

A pamphlet containing tables for conveniently and accurately calculating into pounds, ounces and grains the percentages on given weights of material to be dyed. Such a table is of almost hourly use in a dye house, and as it is of ample size,

being 8 1/2 by 16 inches, it can be tacked to the wall of the drug room to advantage or mounted near the dyer's desk. It is to be had, free on application, on either heavy or light cardboard. Dyers in asking for a copy should specify the particular one wanted.

Improved Drawing Frame; the Saco-Lowell Shops, 77 Franklin St., New York.

A pamphlet describing and illustrating the further improvements that have recently been developed and applied to the drawing frames built by this concern, which tend to increase efficiency in handling all the various grades of cotton. These frames are equipped with a revolving clearer, hank clock and a full can stop motion with target.

Dyehouse Efficiency; by Louis J. Matos, Ph.D.; The Cassella Color Co., New York.

This book contains extracts from the valuable paper on "Dyehouse Efficiency" read by Dr. Matos before the American Institute of Chemical Engineers, in Boston, June, 1913. The publishers also call attention to the service they render to the textile trade.

Charts for Weights of Castings, Wire Gauges, Drills and Machine Screws; The S. C. Carpenter Drafting and Engineering Co., Hartford, Conn.

One of these charts consists of a movable dial which can be so adjusted that the weight of cast iron, zinc, copper, brass, gun metal or aluminum casting is indicated by the weight of the pattern. Separate divisions are arranged for weight of patterns made of red, white or yellow pine and Nassau, Honduras or Spanish mahogany. The other chart indicates the gauge of wire drills and machine screws.

Industrial Notes

SIZING FOR WARPS

The Arabol Mfg. Co., 100 William St., New York City, recommend their "Sizeoleum" as a reliable sizing for warps. It does not call for the addition of tallow. It gives unexcelled results on warps for grey goods of the export grade and for converters' goods. Used with starch it works splendidly as a sizing on warps for sheetings, printcloths, shirtings, ducks or similar goods.

The Duluth office of the H. W. Johns-Manville Co. has moved to larger quarters at 327 W. First St., in order to take care of its increased business. The new office is on the ground floor, with windows for the display of J-M asbestos roofing, pipe coverings, packings, sanitary specialties, auto accessories and other products of this company's well known and varied lines.

THE NATIONAL ASSOCIATION OF WOOL AND WORSTED OVERSEERS

The thirty-second semi-annual meeting of the National Association of Woolen and Worsted Overseers was held at Rocky Point, Providence, R. I., on May 16th. The meeting was called to order shortly before 12 o'clock and adjourned soon after 1 o'clock. President Richard J. Hill called the meeting to order and it was estimated that there were about 165 members present. Applications for membership were about 41 in number.

Edgar N. Taft, Bridgeton, R. I., was elected president; James Wilson, Providence, R. I., first vice-president; Joseph H. Driscoll, Manton, R. I., second vice-president; Robert J. Harrington, Dalton, Mass., Merton C. Brownell, Worcester, Mass., and Thomas Parkin, Providence, R. I., were elected third vice-presidents; Walter Pickford, Clinton, Mass., reelected as secretary; Thomas Buchan, Hyde Park, Mass., reelected as treasurer; C. M. Hurst, Providence, R. I., Louis Carmack, Providence, R. I., and James H. Cobb, Careyville, Mass., reelected as trustees; W. E. Davison, Putnam, Conn., secretary of the beneficiary department; Thomas Buchan, Hyde Park, Mass., treasurer of the beneficiary department.

The following committee was appointed to make arrangements for the annual meeting in Boston: John W. Linehan, Thomas Buchan, Edgar N. Taft, James Wilson and Walter Pickford.

The following applications for membership were submitted for aporoval to be acted upon at the November meeting:

Carders—George Mahelsky, Ralph J. Weeks.

Designers—Z. Donald Lemieux, Arthur E. Cooper.

Dressers—John H. Young, R. C. Thompson, Noe La Chance.

Dyers—James Mayall, Armand Henault, James T. Booth, Herbert Massy, Harold Ickerngill, George Dagon, Samuel Stott.

Finishers—William Arran, Arthur D. Mansell, Harry Carleton, Heywood Ramsden, James H. Walsh, Henry G. Steinberg, Joseph L. Luckina, A. E. Fanthorpe, Walter H. Eyers.

Sewer and Burler—John J. Monahan.

Superintendent—William Illingworth.

Spinners—Charles Stephenson, James A. Higgins, Gilford Dyer, Robert Coupe, Thomas Firth, John J. Sullivan, William Starling.

Weavers—John Knox, Louis H. Swenderhauf, Elwood Ward, Fred Newcomb, Arthur S. Quirk, Joseph Soper, John E. Millett.

Winders—T. Frusher, Jr., Adolph A. Burkhart.

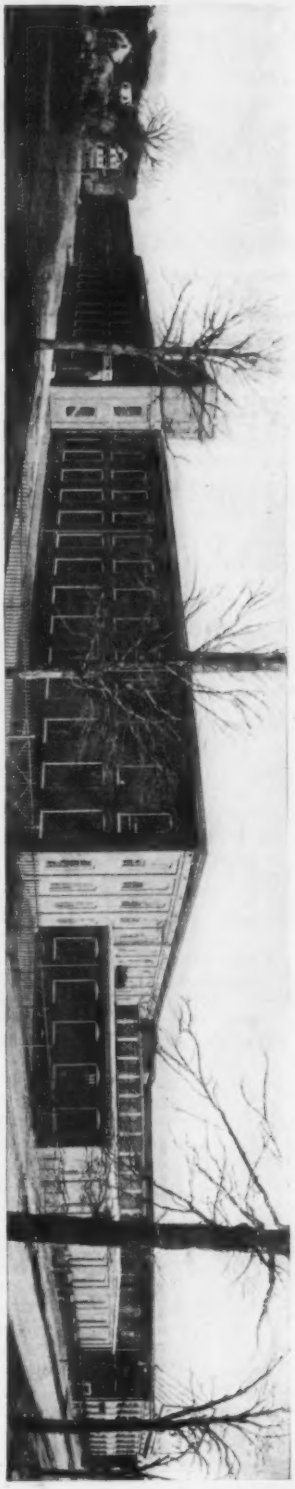
A CONNECTICUT SILK MILL

An addition is being made to the silk mills of Cheney Bros., South Manchester, Conn. Work has just started on a new two-story weave shed, 150 by 321 ft. and a 2-story dye house, 80 by 326 ft. Both new buildings, which are for the velvet department, will be built of brick and reinforced concrete.

Pennsylvania, Hawley. A loss of about $3,000 was caused by fire which damaged the plant of the Kaidy Knitting Mills, owned by Richard Richards.

THE AMERICAN FELT COMPANY

The accompanying picture shows the new Hawthorne Mills of the American Felt Company, situated at Hyde Park, Mass. The plant has been equipped and running in full about four months. The mills are situated 500 yards from the passenger station in Hyde Park, which is now a part of Boston. This mill is one of the largest, if not the largest, mill in the country devoted to the manufacture of mechanical or woven felts. The woven felts of the American Felt Company are made in this plant, which is one of seven mills owned and operated by the American Felt Company. The fabrics made are roller, clearer and slasher cloths used in textile mills, laundry cloths used in power laundries, woven felts for piano actions, lithographers' flannel, sieve cloth for wall paper printing, press blankets for newspaper printing, etc. The mill is surrounded by spacious grounds, which are in process of improvement, already having been attractively enclosed by a new iron fence.



THE NEW HAWTHORNE MILLS OF THE AMERICAN FELT CO. AT HYDE PARK, MASS.

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POSITIONS ASSIGNED ACCORDING TO FITNESS

Excellent results are already being obtained by The Goodyear Tire & Rubber Co. from a system by which every prospective employe is submitted to a physical examination. The system was installed with an examination of employes on the company's pay roll January 1st of this year.

The examination itself is not so formidable as it sounds. And the presence of various ailments revealed by examination does not necessarily bar candidates from employment by the company. On the other hand the information thus obtained enables the placing of men where they will be most efficient and can work with minimum discomfort and maximum returns for themselves. This is given as one of the reasons why the Goodyear plant, now employing about 7,500 men, a number not greatly larger than the number employed last year, is producing nearly double the product turned out in 1913.

Many men's positions were changed at the beginning of the year, when examinations were begun, and those who were changed were benefited in every instance, according to the record. No one is absolutely barred by the examination, unless found suffering from contagious or infectious diseases.

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The copartnership, lately existing between G. Albert Baumann and Leon B. Monnier under the firm name of Baumann & Monnier, 80 Maiden Lane, New York City, has been dissolved by mutual consent. All debts payable are to be received by Mr. Baumann and all liabilities are to be presented to him for payment at the above address.

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The Bibb Mfg. Co., Macon, Ga., will install three 150 kv-a. transformers and 35 and 75 h. p. induction motors which have been purchased from the General Electric Company.

BODKINS AND BELT HOOKS

S. Linford Nace, Schuylkill Haven, Pa., manufactures a line of nickel plated bodkins for underwear manufacturers which are made with special reference to this trade by a practical man who knows just what is wanted. Mr. Nace also manufactures a special sewing machine belt hook which he has found by practical experience to be a very useful and practical device.

THE NEW SLATER WOOLEN MILL

There is being erected for S. Slater & Sons at Webster, Mass., under designs of Charles T. Main, engineer, Boston, a new woolen mill four stories high, with a basement under the eastern half, and measuring 133 by 167 ft. The building is of regular mill construction—concrete footings, brick walls, steel beams and plank floors and roofs, with an asphalt and slag finish on the roof. The west end of one finishing building was torn down to clear the site for the new building which adjoins the north end of No. 6 Weave Mill. The plans involve also the relocation of two one-story storehouses.

The building is a rectangular, with elevator and stair towers outside the main area at each end. Three of the five longitudinal spans measure 26 ft. from center to center of the column, the two outer spans being a trifle wider. Over the central span, and practically the length of the building, runs a saw tooth roof 26 ft. wide with wood frame sash, double glazed, the lower glass being wire mesh. Each "tooth" measures 24 ft. lengthwise of the building.

The concrete column footings vary in size from 5 ft., 6 in. square to 5 ft. square, the wall footings being 28 to 36 in. thick, except on the east side, where they reach 6 ft., 6 in. at the base. The columns in the basement as well as in the first and second stories are cast iron, 8 in. in outside diameter and 7/8 in. thick. In the fourth story are substituted 5 1/2 in. heavy Lally columns. The column spacing, except for those in the upper story, is 12 by 26 ft. Those under the roof are 24 by 26 ft. Each column is surmounted by the regular pintle supporting the floor beams, which are 18 in. I-beams, 55 lbs. to the foot under the first, third and fourth floors; 20 in. I-beams, 65 lbs. to the foot under the second floor, and 15 in. beams, 42 lbs. to the foot to support the roof.

The floor in the basement consists of 4 in. of concrete with 1 in. granolithic finish. Under that portion of the first floor which is not over the basement there is a 4 in. tar concrete floor surmounted by 3 in. plank and 7/8 in. maple top. In all other places the floor consists of 5 in. hard pine plank with a 7/8 in. maple top. The roof plank, 4 in. thick, is covered by asphalt and slag and has a pitch of one-half inch per foot.

The towers outside the main structure include elevator and stair towers at one end measuring 8 by 12 1/2 ft. inside dimensions for the elevator and 20 by 12 1/2 ft. for the stairs. At the other end the stair tower measures 25 by 13 ft., with two toilet rooms measuring respectively 13 1/2 by 13 ft. and 10 1/2 by 13 ft. inside.

Protection against fire is furnished by a complete outfit of automatic sprinklers on the wet pipe system, the spacing being 12 by 8 ft. The total number of sprinklers is about 1,150. In addition to this, use is made of automatic sliding fire doors at openings into elevator and stair towers, etc.

The building is heated by a Warren Webster vacuum system, the radiation on each floor being about 1,750 square feet. Webster sylphon traps are used at the return end of each coil to pass off air and the water of condensation, and automatically to hold the steam within the pipes until it has done its work. These traps permit the varying of the steam pressure in the coil to suit weather conditions, and adjust themselves automatically.

Electric power is furnished to the machines in groups, each group driven from shafting operated by a 3-phase induction motor taking current at 550 volts and 60 cycles. The motors are carried on supports which span from beam to beam, just below the ceiling.

CAN TRAMWAYS CUT OPERATING COST

William Firth, 200 Devonshire St., Boston, Mass., has recently obtained data from mills operating his patent can tramway which was illustrated and described in the Textile World Record some time ago and which has been introduced into a number of important cotton mills. An analysis of these figures shows that under this system they are handling their cotton from bale to slubber at cost of from .03 1/2 to .04 per pound, covering all expenses of the department. Figured in percentage this makes a saving of 15 per cent. in operating expense and in some cases the mills have increased the wages for this work a corresponding amount, which has insured them better employes. The tramway is proving itself to be a real cost reducer.

SPECIALIST IN MILL BUILDING

W. E. S. Dyer, Land Title Bldg., Philadelphia, Pa., announces that the continued growth of his consulting, engineering and architectural work compels him to give up some outside agencies which he has previously held and from now on his time will be exclusively devoted to the design and superintendence of the construction of factories, mills, industrial buildings, power plants and allied operations. In the past 12 years he has had oversight of the design and superintendence of construction of more than 500 factory buildings, power plants, etc., in Philadelphia and vicinity, which is an unusual record, particularly as some of these years have been periods of industrial depression.

AGENT FOR HOSIERY

Walter P. McClure, who has been for several years past associated with John M. Given is now established on his own account as selling agent for hosiery with an office at 346 Broadway, New York City.

GRADUATING EXERCISES OF THE TEXTILE SCHOOLS

BRADFORD-DURFEE TEXTILE SCHOOL

The graduating exercises of this school were held in the school building at Fall River on May 27th. An address of welcome was delivered by President Lincoln and an address was also delivered by Harry C. Raynes, consulting engineer, of Boston. Following is a list of the graduates and their theses:

Designing and Weaving (two years)—Thomas Desmond Leonard Menchion, "Ornamental Textile Fabrics"; Kenneth Francis Remington, "Designing of Plain Cloth"; Frank S. Taft, "Double Cloth."

Free-hand Drawing and Ornamentation (two years)—Frank Gardner Brightman, "Drawing in Charcoal"; Aveling Clegg Hopewell, "Ornamentation."

Special Engineering (two years)—Alton Ellis May, "Advancement of Electricity Over Steam."

Special Weaving (two years)—Louis Lincoln Bowman, "Industry Against Indolence in the Textile Field."

General Cotton Manufacturing (three years)—Lester Severin Field, "The Cotton Fiber"; Paul Edward Harrison, "The Moistening System, Past and Present"; Edwin Hays, "Designing as Applied to Fabrics"; Horace Babcock Holland, Jr., "A Chronology of Dyestuffs"; Edward Vincent Lahey, "Textile Machinery"; Eudore Le Boeuf, "Origin of Cotton"; Frank Hatch Newton, "Utilization of Cotton Waste"; Lester Chace Winslow, "Spinning."

Edward V. Lahey was presented with the medal offered by the National Association of Cotton Manufacturers to the student having the best standing at the end of three years.

THE PHILADELPHIA TEXTILE SCHOOL

The commencement exercises of the Philadelphia Textile School were held on June 4 and 5 in accordance with the following program:

June 4, 12.30 p. m.—Light luncheon and informal reunion at the school.

1.30 p. m.—Annual business meeting of the corporation and the election of officers for the coming year. The following papers were presented by members:

"Types of Jacquard Machines and Their Special Advantages," by Richard S. Cox (1898).

"Trials and Tribulations of the Loom Boss and the Loomfixer," by William C. Pfeiffer (1905).

"The Textile Chemist's Viewpoint," by Leon Hoffman (1907).

"Automobile Tire Fabrics," by Alvin Kingsbacher (1909).

8 p. m.—Annual commencement exercises of the school were held at Horticultural Hall, Broad St., above Spruce St. The address of the evening was made by Edward James Cattell who spoke on "The Wedding of Art and Industry, the Foundation of Pennsylvania's Greatness."

June 5, 8.30 a. m.—Eleventh annual cruise. The cruise committee, Messrs. Landell, Archer and Walls, secured the use of the steamer Samuel H. Ashbridge for the day, and after a short run down the river, to afford a view of the navy yard, the boat was headed upstream, with Burlington Island Park as its objective point.

The Samuel H. Ashbridge left Race St. Wharf, Delaware River, at 8.30 a. m., returned to Philadelphia at 4 p. m.

6.30 p. m.—The 13th annual banquet was held in the new club house of the Manufacturers Club of Philadelphia, at Broad and Walnut Sts. The speakers of the evening were:

Lewis W. Parker, president of the Parker Cotton Mills Co., Greenville, S. C. Subject, "Problems of Southern Textile Labor."

Joseph F. X. Harold, Ph. D., of New York City. Subject, "Novelty Yarn Spinning."

John Fisler, president of Yewdall & Jones Co., Philadelphia. Subject, "The Business Men's Side of the Question."

MEETING OF NATIONAL ASSN. OF HOSIERY AND UNDERWEAR MANUFACTURERS

(Continued from page 81)

THE IDEA OF THRIFT

BY CLYDE A. MANN

A systematic effort for greater thrift and more thrift education for our young people was taken up last year by the American Society for Thrift. The founder of that society is an investment banker, Simon W. Strauss, of Chicago, who has for years ridden thrift as a hobby.

The American Society for Thrift has now upon its board of active and advisory directors the Governors of fifteen States of the Union and active heads of industrial, commercial and fraternal organizations, including Mr. Carter, of your own organization—altogether a representative array that shows how important is the matter of individual thrift, the problem of household expenses and wages, of economic waste and administrative efficiency.

The letter-heads of the society bear these words: "Not for profit, nor soliciting funds." The purpose is to promote thrift by "inquiry, education and discussion."

In Europe, as you know, the greatest blow to socialism has been the advance of cooperation, an advance like that of a prairie fire. Not only in Great Britain but all over the Continent, even into Russia, and in the Far East to India, cooperation has spread, and has given to the cooperative all the benefits and more than those which the Socialist orators have promised if and when socialism wins the majority of our people. Cooperation has broadened the human family and there are no less than twenty million cooperators in Europe united by a common bond of necessity and inspired by a common motive—thrift. Their results have been staggering and their success has been almost incredible. Two and one-half million cooperators own, operate and profit from a great business in Britain whose turn-over last year was only less than that of the United States Steel Corporation.

There are some conditions in America which seem less favorable for cooperation than the conditions abroad, but there is none who knows the facts who does not predict that cooperation will

become great and powerful in this country.

There are thrift movements in Germany, in France, even in Italy and Russia, also in Australia and New Zealand, of which most American people know not. A world's congress of thrift will bring together in America ideas far-reaching and of startling significance. Such a congress, an international congress of thrift, is proposed. The Panama-Pacific International Exposition has invited the American Society for Thrift to arrange and hold at San Francisco next year such a congress, to continue for a week. The Exposition has offered the choice of many halls and auditoriums, including those which will seat a vast audience of 12,000 people. Such a congress can be held, and it can be made momentous, a turning point from the prodigal ways to ways of thrift. The tentative plans of the congress include State-wide and nation-wide contests. Such a congress will be outside of the work and efforts of the American Society for Thrift. The question is how it shall be held and who will cooperate and participate in it. It cannot and will not be held unless it can be of far-reaching benefit and importance to the American people.

In behalf of the American Society for Thrift I invite and urge your cooperation in the new thrift movement as one good way to solve the vexing problems that surround all of you in the business world.

OPERATING COSTS AND ECONOMIES

By C. E. MURRAY, New York

The easy-going manufacturing methods of our grandfathers are gone the way of the tallow candle and the flintlock. In these days, when a variation of 5 per cent. in cost may mean riches or ruin, eternal vigilance is the price of success.

Manufacturers today find themselves between the devil and the deep sea—between the "devil" of constantly increasing cost for materials and labor and the "deep sea" of constantly increasing competition.

There is a certain form of competition to which the manufacturer cannot well object, namely, to that of the man who knows exactly what his goods cost and whose prices, if low, reflect advantages actually secured through volume or by reason of highly efficient methods of production. The form of competition which is most dreaded, however, is that of the man who, having no proper knowledge of cost, sets prices which preclude the possibility of there being an adequate profit in the business for anyone.

The natural accumulative effect of this unintelligent competition was really the prime factor in causing the formation of associations in various lines, with the consequent agreements relative to sales prices. Recent legislation, however, has tabooed these selling agreements, and manufacturers find themselves contending with the same old discouraging competition. Despite this fact, this legislation has been a beneficial move in that it has forced manufacturers to approach the problem from an entirely different angle, namely, uniform cost-finding methods. No matter how many selling agreements might be in force, the evil of manufacturing some portion of the product at a loss would still be in evidence without an exact knowledge of final costs. Absence of this knowledge forces a manufacturer to govern his selling price by that of his competitor. His competitor is just as liable to be producing at a loss, in fact, more so, as the natural law of competition has a tendency to lower selling prices from year to year, due to the sending out of leaders with an attractive price attached and the almost utter impossibility of getting that price back to its original figure.

That is true is your line as well as many others. A number of industries, however, have awakened to the fact that it is business suicide to continue as they have been doing and through the activity of their association officers have adopted a corrective measure in the shape of uniform cost methods. Wherever this measure has been adopted the desired results have been immediately and almost automatically attained. No manufacturer will continue a line of goods in the face of conclusive proof that he is exchanging a dollar for eighty or ninety cents.

The manufacturer of knit goods today faces the combination of advancing costs on material, labor and expense, together with the keenest sort of competition on the selling end of the business. Under such circumstances profits would undoubtedly be sufficiently reduced if all competition were based on an exact knowledge of costs. In the absence of such knowledge it is not surprising that conditions are far from desirable.

If we were able to make a canvass of the entire industry we would find a large number of manufacturers who would cheerfully admit their ignorance of this important matter, and who would, at the same time, defend themselves by claiming that the clerical cost to be incurred in determining manufacturing costs would be in itself so great as to be prohibitive. We, in turn, cheerfully admit that cost-finding, like any other good thing, can be and is carried too far. But for every manufacturer who goes too far into the matter there are hundreds who do not go far enough. This is notably the case in the knit goods industry.

This fear of over-elaboration in details and consequent excess of clerical cost is largely responsible for the conditions which exist in the industry along this line. Yet, despite the fact that there are refinements of cost-keeping which are profitless, there is a happy medium of cost knowledge which all who expect to survive must in time acquire.

We accept the pound and the yarn as units of weight and measure, and yet as we use them in business they give us results only within a reasonable degree of precision. In the same way it is possible to devise for any business a method of determining cost which, while free from hair-splitting distinctions, will give wholly acceptable results with clerical economy.

It is usual in the knit goods industry to prepare an estimate of the cost of each line at the beginning of the season in order that an equitable selling price may be set. This condition of affairs always has existed and an estimated cost will al-

ways be a necessary part of your business. Very few manufacturers, however, have sufficient knowledge of the variations in cost which occur during the actual production of the goods.

The estimated cost and the actual cost determined after the production of the articles in question will show variations at every point—in the weight of the yarns used, the amount of waste made in cutting, etc., and in the amount of trimming and supplies issued from stock. The labor cost will vary, especially under the day-work wage-payment plan, and the expense will, of course, vary widely under changing production conditions.

The work of the cost expert is to present with clerical economy all these per cents. of discrepancies and variations as they occur in such a way that the manufacturer may always know the relation between his actual costs and his assumed costs as expressed in his estimates.

Entirely apart from the matter of variation between estimated and actual costs, many manufacturers have been misled by an improper treatment of manufacturing expense in computing estimates or costs. In applying such expense the heretofore accepted method in the knitting industry has been to use as a basis the unit of dozens or a combination of labor and material. Both of these methods are obviously incorrect.

Consider them in the order named: That the dozens method is incorrect will be apparent if a study of the detail of manufacturing expense items is made. Such a study will show that expenditures of this nature are incurred, practically without exception, in order to keep workmen employed, and hence may be equitably applied to the various lines produced only in relation to the productive labor, the labor hour, the machine hour or other factors which reflect the element of time.

To show more specifically how possible it is to be misled by the allocating of expense upon the basis of the dozen manufactured, let us suppose that a concern produced last season a line in which the cheaper grade predominated. Their estimates of expense costs for this season would naturally be based on a production possible under last season's conditions. Assuming that this season the sales run largely upon the better grades, the production in dozens will drop off correspondingly and the actual profits will fall below the estimates, for the simple reason that expense was improperly treated in the estimate.

Manufacturing expense ordinarily approaches in volume the productive labor. Its misapplication, therefore,is just as misleading as would be an equally incorrect handling of the direct labor charges. How many manufacturers would consider satisfactory the averaging of labor charges in their estimates on a basis of the dozens manufactured?

As compared with the dozen method, the allocation of expense in relation to productive labor would have the effect of reducing the calculated cost of the grades which are cheaper from a labor standpoint, at the same time throwing the burden on the more expensive lines. Such a distribution of expense is, however, correct, and will produce costs which will be comparable from season to season, for the reasons stated.

Applying expense on a combination of labor and material is even more inaccurate that the dozen method. The value of material in a dozen garments or a dozen hose should have no bearing upon the amount of expense charge to that garment or hose. Let us consider a hosiery mill manufacturing a line ranging from $2 to $30 per dozen. Admittedly there is very little more labor on the $30 number than on the $2 number. Yet ten or twelve times the amount of expense would be assessed againt the former than against the latter. Anylyzing expense by items fails to show why this should be. There would be no greater charge for administrative expense, for taxes, insurance, depreciation or general expense except as reflected by any increase in the labor cost. The $30 number takes up no more space moving through the plant, nor, in fact, costs any more to manufacture, so far as expense is concerned, with the possible exception of a slightly increased charge for interest on money borrowed to carry the higher-priced material.

The reflection in the unit costs of this method of expense application is to show a lower cost on the cheaper grade and a higher cost on the better grade than is actually the case. This is just the opposite to what it should be to allow for an intelligent setting of selling prices.

To illustrate further: Some years ago we served a manufacturer of ladies' underwear who had just sent out an attractive leader. The cost of this number was figured as usual and showed about 5 per cent. profit. Over 5,000 dozen had been sold by their selling agents before we were in a position to submit a final cost. This final cost, however, showed that they were taking a 30 per cent. loss instead of a 5 per cent. profit. The loss amounted to something over $12,000 on that one number. By using a combination of labor and material on which to apply expense this manufacturer had assessed this $12,000 against his higher-grade numbers, with a consequent increased cost for those numbers. Competition, hower, prevented him from obtaining a proportionately higher selling price for the better grade.

When we consider that the knit goods industry is using two methods of cost-finding, both incorrect, which are diametrically opposite when reduced to the final unit cost, it is not surprising that conditions are unsatisfactory.

This question of costs in not one of merely academic interest. It is, as a little thought will show, a matter of real concern, for if costs are to be utilized to the greatest extent as guides to executive judgment, the cost of each article must be calculated so accurately as to reflect its individual status as a profit-earner.

From the standpoint of the individual manufacturer the adoption of uniform cost methods merely mark the primary step in efficiency. Unquestionably uniform costs mean the survival of the fit, or , in other words, the survival of the efficient. With a logical basis, however, on which to operate, and the knowledge that if a competitor is underselling it is because he is a better executive and has a more efficient mill, the manufac-

turer finds himself with something tangible to work upon. It then behooves him to study his own costs and determine just where he is lacking.

A lot has been said, written and done the past few years about efficiency in the metal working industries, and these industries are becoming more and more efficient. The average knit goods manufacturer will claim, and rightfully so, that his business is different. Yet this does not lessen in the slightest degree the fact that the knitting business is just as susceptible to installation of efficiency methods as is any other line.

A production system to prove thoroughly effective should cover a number of points. It must insure that stocks are maintained at certain limits, such limits to be set with a view to the demand during past periods. It must consider the money tied up in carrying raw material, cloth stock, goods in process and finished stock. It must consider the time required to replace that which is withdrawn. It must minimize the lost time factor of the knitting machines. It must insure a sufficiently well-balanced stock in process in the finishing departments to obtain the maximum amount of machine and operator efficiency. It must insure all of these and more. Yet this particular phase of manufacturing in the knitting business receives less attention than any other.

The ordinary mill carries some of its yarn from three to six months before attempting to use same. A large per cent. of the cloth is frequently carried over from one season to another, due to the prevailing custom of allowing the cutting or finishing overseer to determine the cloth requirements. Following the sequence of operations we find the finishing department benches piled ceiling high with goods in process, and so on into the finished stock, with its over-supply of some numbers and shortages on others.

Reducing the queries to figures, how many manufacturers are able to produce $300,000 a year with a maximum yarn stock of $10,000 to $12,000? With a maximum cloth stock of $8.000 or $10,000? With a maximum finished stock that will enable them to turn their money over three to four times a year and eliminate the shortage evil? How many are assured that all goods will be delivered to finished stock one week after cutting? All of these are entirely possible, and at the same time insure a sufficiently well-balanced stock of goods in process to eliminate any loss of time on the part of the operators or machines waiting for work.

It is an admitted fact that the knit goods manufacturer is slower in deliveries than any other class of manufacturing. Also, admittedly, the fact that the business is seasonable allows a reasonable excuse. There is, however, one underwear concern in this country, dealing with the retailer direct, that has built up a $2,000,000-a-year business, due almost entirely to the fact that it was able to deliver goods on promised dates and was in this way able to take the business from its competitors. Needless to say, this concern has realized the possibilities of and has adopted scientific production methods. What one manufacturer has accomplished is possible for another.

ADOPTION AND PROTECTION OF TRADE-MARKS

By H. R. CULBERTSON, New York City

Trade-marks are the newest species of property on the list of assets of the business men of the country who are engaged in interstate commerce. This statement may strike you as peculiar and perhaps strange, and you may not at first be inclined to believe it, but that is because you are not fully familiar with the trade-mark law of 1905.

If you are about to start a new enterprise or adopt a new trade-mark, it is highly important that you give the subject the full consideration that its importance deserves. While building up a trade you will find that it will aid you the faster in building up good will to adopt and use a trade-mark by which your customers can always distinguish the goods they buy. Every sale you make without a trade-mark loses something you might have gained in good will, while every sale you make with a trade-mark helps to make it a bond between you and your customer. Before long your customer has a right to expect that your goods carry your commercial signature in your trade-mark, by which means the customer distinguishes them from others, he has become accustomed to your quality and price, and he is willing to pay the price for the quality. But if he has no means of identifying your goods he may be deceived into buying an article he thought was yours, and the good will which should have been yours vanishes like budding fruit under a blighting spring frost.

If you are not creating good will by the use of a technical trade-mark you will soon catch step with the modern methods by adopting a mark by which your goods can be identified. If you adopt a trade-mark and have not been fully advised as to its registrability, and do not place it under the protection of the law, it is subject to forgeries which it would cost you too much to prevent. You may think your attorney can register your marks for you, and he undoubtedly knows the forms and is competent to apply for the registration, but unless he specializes in the business and is equipped to secure the information you should have at the time you adopt a new mark, he cannot know whether your mark is original or not, consequently the job belongs to specialists who have complete files of all registered trade-marks, as well as files of thousands of marks in use but not registered, with index and cross index files of every mark on the records of the United States Patent Office.

There are three notable features in the law of 1905 which I urge you to consider. In the first place, the law lifts your mark to the dignity and character of a permanent property, because you can now make it distinctively and exclusively your own forever. In the second place, the law provides remedies and penalties for the wrongs of infringement that make it attractive as well as just to prosecute infringers. In the third place, and this is highly important, the law recognizes for the first time interstate commerce. Under previous laws you could not get a standing in court unless you could show that the infringement you complained of damaged your trade with Indian tribes or foreign nations.

The new law has changed all of this and brings in a new era of trade-mark usage. One business house in the West is now trying to escape a judgment of more than $400,000, rendered because it was found to have sold goods under a trade name which belonged to a competitor.

The importance of using trade-marks is becoming better known every year, and every manufacturer in any article in which he takes pride, is learning to make a valid, technical trade-mark the permanent basis of the good will created by the quality of the goods. If a man puts what Sheldon calls "Soul-stuff" in the products of his creation, his goods, in other words, the merchandise thus created and sold, deserve some such identity as a trade-mark gives, and when thus nominated for the public's election, the call for the goods by name is sure and the customer becomes accustomed to an established price, the trade-mark therefore serving to maintain the price of profit. Look well to your trade-mark, and make the public know what it stands for. The manufacturer is responsible for the quality of his goods, the life of his business depends on the success with which he can maintain that quality. He spends his money in advertising this fact, and if he is wise, the trade-marks or trade-names to identify his goods in the open market have been most carefully selected, and have been given every protection the law affords.

A strenuous effort has been made by the public press and trade journals to awaken the purchasing public to a realization of the importance of requiring from the retailer what was originally asked for by the customer, and a bill is now before the House of Representatives to prevent discrimination between differing consumers and localities by establishing uniform prices for uniform commodities, and especially to prevent price cutting on standard advertised articles. Such a bill, if passed, will push into the "spot light" every well-known and well advertised trade-mark, for the owner of such a mark will realize that his efforts to bring out an article of merit in spending his money to advertise such an article, will be safe against price cutting. Mr. Woodrow Wilson said, "Safeguard American men against unfair competition, and they will take care of themselves."

Registration of a trade-mark is prima facie evidence of ownership. The Government, however, does not defend infringements of trade-marks registered in the United States Patent Office. The rights of property in a trade-mark recognized in the Federal and State Courts are granted to the individual or firm that originates and applies the mark to a certain class of merchandise, such priority confers common law rights to ownership, and under it the owner can obtain protection and relief. Priority of use of a trade-mark, therefore, is the most important factor in establishing exclusive right to it, and in showing this priority lies the greatest advantage of registration.

The greatest danger of the infringement of a trade-mark does not come by wilfully appropriating the marks of others, but by unknowingly adopting same without knowledge of its prior use by others. Therefore inasmuch as no trade-mark is allowed registration in the United States Patent Office until it has been compared with other marks previously registered, it considerably reduces the percentage of chances of infringement to have an examination made of the records in advance of the filing of an application. There are a few who have, unknowingly, infringed upon the rights of others in this respect and have been obliged to destroy their labels and packages on said account, thus having not only lost money, but the good will and trade under the particular mark which was used and discontinued simply because full information was not obtained at the time of the adoption of the mark.

For the reason just cited, that is to avoid unintentional infringements, it is of vital importance that your trade-marks be registered in the United States Patent Office, and that on all new marks, adopted in the future, you secure an opinion of the specialist. Other advantages of registration are: it permits suit to be brought in a United States Court with regard to citizenship or amount involved; it gives the registrant a prima facie right to the mark, and in a contest or suit, places the burden of proof upon the party who has not registered; and it further provides for damages, an injunction and the delivery of all infringing prints.

Besides the possibility of infringing there are many other precautions advisable to take, and if you are properly advised, you will always adopt, when possible, coined names or original designs; you will not imitate a name or design of a mark already registered on similar merchandise; you will not dress your package or produce your label to imitate another; you will avoid geographical names, descriptive names or proper names, you will not use the portrait of a living person without the consent in writing from such a person—these, and many other precautions should be strictly lived up to, and if you make one head the clearing house for all of your trade-mark information, and file your trade-marks now in use with the clearing house thus established, you will have taken the step toward the elimination of your trade-mark troubles. A very important precaution is frequently neglected by the individual or firm registering a trade-mark, and that is with reference to Section 28 of the trade-mark law, the act of Congress requiring this action is as follows:

"That it shall be the duty of the registrant to give notice to the public that a trade-mark is registered by affixing thereon the words, 'Registered in the U. S. Patent Office,' or abbreviated, or when from the character or size of the trade-mark, or from its manner of attachment to the article to which it is appropriated, this cannot be done, then by affixing a label containing a like notice to the package or receptacle wherein the article or articles are inclosed; and in any suit for infringement by a party failing to give notice of registration no damages shall be recovered, except on proof that the defendant was duly notified of infringement, and continued the same after such notice."

With reference to the handling of the trade-mark business of the members of the National Association of Hosiery and Underwear Manufacturers, we have submitted a proposition to your secretary, Mr. Carter, and I have had the pleasure of meeting with your executive committee with reference to the matter.

Recent Textile Patents

BOBBIN CARRIER. 1,095,709. Henry Z. Cobb, Winchester, Mass.

BOBBIN-STOP. 1,094,239. Carl Nordell, Gilbertville, Mass.

BOBBIN WINDER. 1,095,372. August Belz, Untergoldach, Switzerland.

BOBBINS, System of Preparing Filled. 1,094,343. James H. O'Connell, Lowell, Mass.

FABRICS from Fibrous Plants, Making. 1,096,709. John S. Gillies, Manila, P. I.

FIBROUS MATERIAL and Making the Same, Refractory. 1,094,352. Ezechiel Weintraub, Lynn, Mass.

FLAX or Other Fibrous Materials, Scutching. 1,095,495. William J. Fernie, Newark-upon-Trent, England.

KNITTED GARMENT. 1,094,884. William N. Daniels, New York.

KNITTTED WEB and Making the Same, Welted. 1,096,566. Robert W. Scott, Leeds Point, N. J.

KNITTING MACHINE. 1,095,165. Arthur S. Musgrove, Pittsfield, Mass.

KNITTING Ribbed Fabrics. 1,094,482. Robert W. Scott, Leeds Point, N. J.

KNITTING Selvaged Fabrics, Method of. 1,094,347. Robert W. Scott, Boston, Mass.

LOOM. 1,094,424. Thomas Brindle, Providence, R. I.

LOOM. 1,096,283. John C. Brooks, Paterson, N. J.

LOOM, Haircloth. 1,094,882. George S. Cox, Philadelphia, Pa.

MATTING FABRIC. 1,096,404. Noboru Terashima, Shinnakadori, Japan.

PILE FABRIC, Woven. 1,096,510. Hector Le Doux, Worcester, Mass.

PILE FABRICS, Apparatus for Raising. 1,096,062. Fred Shaw, Middleton, Eng.

SHUTTTLE, Self-threading. 1,093,713. Alfred Meunier, Taunton, Mass.

SHUTTLE THREADER. 1,093,837. Joseph Dufresne, Montreal, Can.

SPINDLE LUBRICATOR. 1,093,970. Attum J. Britt, Glenwood, Ind.

SPINNING and Twisting Frame. 1,096,059. Pietro Saracco, Turin, Eng.

SPINNING MULES, Reversing Mechanism for the Band Cylinders of. 1,094,100. John H. Ryalls, Charlottesville, Va.

SPINNING MULE. 1,094,327. Walter Hamer, Bolton, Eng.

SPOOLING or Like Machines, Stop Motion for. 1,093,715. James H. O'Connell, Lowell, Mass.

SPINNING, Twisting and Like Machines, Thread Board for. 1,093,715. Albert H. Morton, Lowell, Mass.

SPINNING MACHINERY. 1,095,458. William Cuttill, Godley, Eng.

SPINNING MACHINES, Feeding Device for Horsehair. 1,095,098. Norbert Frank, Forst, Germany.

SPINNING, Twisting or Like Machines, Roll Support for. 1,094,697. Harry E. Blanchard, Lowell, Mass.

TEXTILE MATERIALS, Gaseous or Like Treatment of. 1,095,796. John Brandwood, Bury, Eng.

THREAD MOISTENING Apparatus for Textile Machines. 1,094,856. Albert G. Koechlin, Basel, Switzerland.

TUBULAR FABRIC. 1,093,915. Henry Z. Cobb, Winchester, Mass.

WARP of Different Colored Threads, Manufacture of. 1,096,702. W. and E. Fleischer, Reichenbach, Germany.

WEAVING APPARATUS, Fabric. 1,095,417. Emil Prein, Hanover, Germany.

WEFT-REPLENISHING Mechanism. 1,095,870. Iwan Imbert, Ramonchamp, France.

WINDING MACHINE. 1,093,900. Simon W. Wardwell, Providence, R. I.

TRADE MARKS RECENTLY FILED FOR REGISTRATION

61,609. Textile rugs. Mark: Midlothian. Owner: McCleary, Wallin & Crouse, Amsterdam, N. Y.

70,085. Velvets and plushes in the piece. Mark: Neva. Owner: The Salt's Textile Mfg. Co., Bridgeport, Conn.

75,527. Knit goods. Mark: "Chilprufe." Owner: Daniel W. Shoyer, New York.

76,115. Silk piece goods. Mark: Mexixe. Owner: M. C. Migel & Co., New York.

76,345. Unbleached muslin. Mark: Fidelity. Owner: Carson, Pirie, Scott & Co., Chicago, Ill.

76,549. Fancy plushes. Mark: Deana. Owner: The Hind & Harrison Plush Co., New York.

76,582. Fancy plushes. Mark: Sylvanoff. Owner: The Hind & Harrison Plush Co., New York.

76,739. Underwear. Mark: Trickaway. Owner, A. S. Haight & Co., New York.

76,945. Knit underwear. Mark: Criterion. Owner: The Parsons & Baker Co., Phoenixville, Pa.

69,270. Silk piece goods. Mark: Willette. Owner: W. P. Willis & Co., New York.

75,890. Cheviots. Mark: Broadway. Owner: Pilos Cotton Mills Co., Raleigh, N. C.

76,615. Textile fabrics made of silk. Mark: Teberrine. Owner: Societe Rodier, Paris, France.

70,019. Knitted fabrics. Mark: Winrou. Owner: Charles B. Rouss, New York.

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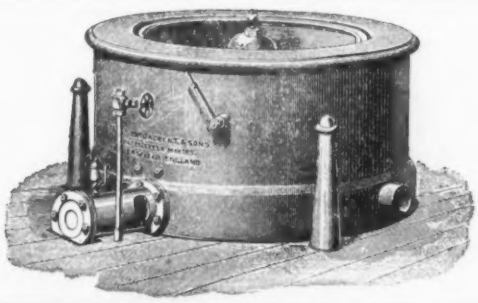

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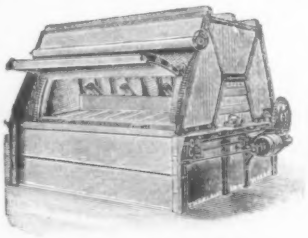

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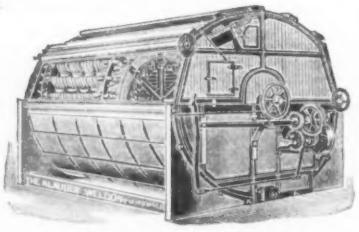

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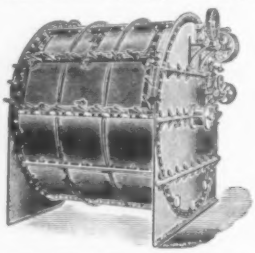
Machines for Dyeing, Bleaching and Scouring Woolen, Worsted, Cotton and Silk Skeins—Slubbing—Raw Cotton and Wool, Waste, Rags, Shoddy, Hosiery, Underwear, Hats, Caps, Knit Cloth, Tapes, etc.



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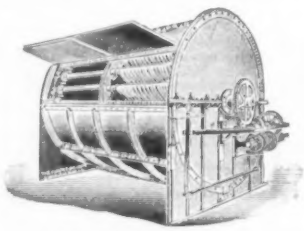
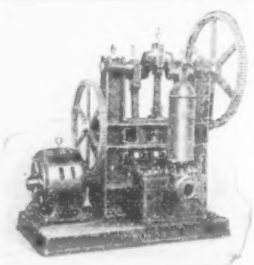
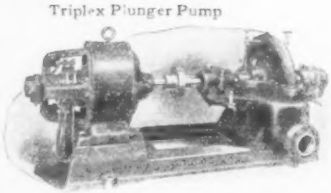


SULPHUR SKEIN MACHINE.



Triplex Plunger Pump



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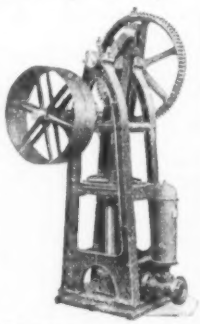
Our line is shown in a series of bulletins, any of which will be sent on request.



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Belt Tighteners.
American Tool & Machine Co.
Dodge Mfg. Co.
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Textile-Finishing Machinery Co.

Bleaching Materials.
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Marston, John P.
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Braids.
——See Tapes, Braids and Edgings.

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Root, C. J., Co.

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——See Napping Machines.

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Union Button Sewing Co.

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——See also Dyeing, Drying, Bleaching, Machinery, etc.

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——See Automatic Feeds.

Card Grinding Machinery.
Buhlmann, A. W.
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Saco-Lowell Shops.

Card Stampers and Repeaters.
Hodgson, Walter W.

Carpet Machinery.
Altemus, Jacob K.
Crompton & Knowles Loom Works.
Curtis & Marble Machine Co.
Parks & Woolson Machine Co.
Philadelphia Textile Machinery Co.
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Cell Drier Machine Co.

Cement Pans.
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Chain Belts.
Morse Chain Co.

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Clocks.
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Richardson Brothers.
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Birch Bros. Somerville Machine Wks. (Albert Birch, prop.).
Leyland, Thomas, & Co.
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Suter, Alfred.

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Parks & Woolson Machine Co.

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Hunter, James, Machine Co.

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Little, A. D., Inc.

Coal and Ash Handling Machine.
Hunt, C. W., Co., Inc.

Cold Sawing Machine.
Burr & Son, John T.

Combs (Wool and Cotton).
Crompton & Knowles Loom Works.
Firth, William, Co.
Hood, R. H., Company.
Leigh & Butler.
Richards, Atkinson & Haserick.
Riley, C. E., Company.

Commercial Vehicles.
Kissel Motor Car Co.

Compressors (Air).
Allis-Chalmers Mfg. Co.

Condensers.
Allis-Chalmers Mfg. Co.
Dean Bros. Steam Pump Works.

Cones (Paper).
American Textile Specialty Mchy. Co.
Fairpoint Corporation.

Conditioning and Testing.
U. S. Conditioning & Testing Co.

Conveying Systems.
Dodge Mfg. Co.
Sturtevant, B. F., Co.

Coolers (Air).
Power Specialty Co.

Cop Machinery.
Eppler, John, Mach. Works.

Cop Tubes.
American Textile Specialty Mchy. Co.
Fairpoint Corporation.
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Copper Expansion Joints.
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Copper Print Rollers.
Taunton-New Bedford Copper Co.

Coppersmiths.
Badger, E. B., & Sons Co.
Textile-Finishing Machinery Co.

Copper Work for Dyers.
Badger, E. B., & Sons Co.
Butterworth, H. W., & Sons Co.
Textile-Finishing Machinery Co.

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Butterworth, H. W., & Sons Co.
Cramer, Stuart W.
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Curtis & Marble Machine Co.
Dixon Lubricating Saddle Co.
Draper Company.
Easton-Burnham Co.
Elliot & Hall.
Entwistle, T. C., Co.
Fales & Jenks Mch. Co.
Firth, William.
H. & B. American Machine Co.
Klauder-Weldon Dyeing Machine Co.
Leigh & Butler.
Mason Machine Works.
Metallic Drawing Roll Co., The.
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Philadelphia Drying Machinery Co.
Philadelphia Textile Machinery Co.
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Richards, Atkinson & Haserick.
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Textile Machinery Co.
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Potter & Johnston Mch. Co.
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Riley, C. E., Company.
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Harding & Fancourt, Inc.
Marston, John P.
Seydel Mfg. Co., The.
Wolf, Jacques & Co.

Cotton Waste Machinery.
Firth, William, Co.
Saco-Lowell Shops.

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Beck, Chas., Co.
Durant Co., W. N.
Root, C. J., & Co.

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H. & B. American Machine Co.
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Rundle-Spence Mfg. Co.

Drying Boards.
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Bailey, Frank.
Birch, Albert, Somerville Mach. Wks.
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Buhlmann, A. W.
Butterworth, H. W., & Sons Co.
Cell Drier Machine Co.
Hunter, Jas., Machine Co.
Kenyon, D. R., & Son.
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Philadelphia Textile Machinery Co.
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Schwartz, L. H. A., & Co.
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Textile-Finishing Machinery Co.
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Dust Collectors.
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Dyers, Bleachers and Finishers.
Aberfoyle Mfg. Co.
Brophy's, T., Sons.
Davidson, John F.
Globe Dye Works Co.
Home Bleach & Dye Works.
Hopkinson Dyeing & Textile Works.
Lorimer's, The Wm. H., & Sons Co.
National Silk Dyeing Co.
Peerless Co.
Utica Willowvale Bleaching Co.

Dyeing, Drying, Bleaching and Finishing Machinery.
American Tool & Machine Co.
Arlington Mch. Wks.
Autoforce Ventilating System.
Birch, Albert, Somerville Mach. Wks.
Birch Bros., Somerville Machine Wks.
Buhlmann, A. W.
Butterworth, H. W., & Sons Co.
Cell Drier Machine Co.
Curtis & Marble Machine Co.
Entwistle, T. C., Co.
Giles, J. H., Dyeing Machine Co.
Heathcote, John, & Son.
Hunt, Rodney, Mach. Co.
Hunter, James, Machine Co.
Hussong Dyeing Machine Co.
Kenyon, D. R., & Son.
Klauder-Weldon Dyeing Machine Co.
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Parks & Woolson Machine Co.
Perkins, B. F., & Son, Inc.
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Philadelphia Textile Machinery Co.
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Somerville Mach. Wks. (Albert Birch, prop.).
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Tolhurst Machine Works.
U. S. Hoffman Co.

Dye House Cans.
Hill, James, Mfg. Co.

Dye House Trucks.
Bailey, Frank.

Dye Kettles.
Stearns, A. T., Lumber Co.

Dye Sticks.
Bailey, Frank.
Klauder-Weldon Dyeing Machine Co.

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American Dyewood Co.
Atteaux, F. E., & Co.
Badische Co.
Bayer Co., The, Inc.
Berlin Aniline Works.
Bischoff & Co.
Bosson & Lane.
Cassella Color Co.
Electro Bleaching Gas Co.
Farbwerke-Hoechst Co.
Ford, J. B., Co.
Geisenheimer & Co.
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Holliday, Read & Sons.
Innis Speiden & Co.
Johnson, Chas. A., & Co.
Kalle Color & Chemical Co., Inc.
Klipstein, A., & Co.
Leyland, Thos., & Co.
Marston, John P.
Roessler & Hasslacher Chemical Co.
Seydel Mfg. Co.
Stein, Hirsh & Co.
Sykes, Walter F., & Co.
Thayer, Ed M., & Co.
Wing & Evans, Inc.
Wolf, Jacques & Co.
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Alphabetical Index to Advertisers, with page numbers, follows this list.

"It is with a great deal of satisfaction that we can recommend the turbine which we purchased from the B. F. Sturtevant Company in the strongest possible manner

The 20 K.W. unit has been in operation for the past two years and has given us perfect service without any exception.

Hoping this is satisfactory and asking that you advise if we can be of further assistance, we remain."

The letter quoted above was written by a large Western Manufacturer to a Western Lumber Company in response to a request for their opinion of the Sturtevant Turbine. The names of both these companies will be furnished on request.

Could a stronger recommendation of the Sturtevant Turbine be written? Two years of "perfect service without exception" and the Sturtevant Steam Turbine will continue to give this perfect service for years to come.

Sturtevant
(REG. U. S. PAT. OFF.)

Steam Turbines

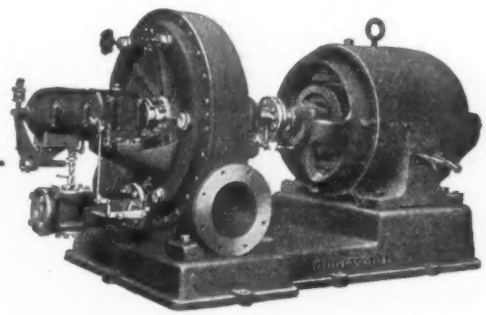
are small users of steam, the forged steel solid rotor with milled-in buckets and the special nozzles and reversing chambers insure this. They are durable, the solid rotor can't wear out or fly to pieces. They are simple, there is nothing about them that can give trouble. Sturtevant Geared Turbine is adapted for driving any apparatus at any speed efficiently.

It will pay you to investigate this somewhat different turbine.

Ask for Catalog 210-T

B. F. STURTEVANT COMPANY, HYDE PARK, BOSTON, MASS., and all principal cities of the world

Selling Agents for Sanford Riley Stoker Company, Limited,
"THE RILEY STOKER"



Electrical Construction.
Allis-Chalmers Mfg. Co.
General Electric Co.
Sturtevant, B. F., Co.
Westinghouse Electric & Mfg. Co.

Electrical Heating Devices.
General Electric Co.

Electrical Supplies.
Johns-Manville Co., H. W.

Electric Driven Pumps.
Allis-Chalmers Mfg. Co.
Dean Bros. Steam Pump Works.
General Electric Co.

Electric Fans.
Allis-Chalmers Mfg. Co.
General Electric Co.
Philadelphia Drying Machinery Co.
Philadelphia Textile Machinery Co.
Sturtevant, B. F., Co.
Westinghouse Electric & Mfg. Co.

Electric Hoists.
Allis-Chalmers Mfg. Co.
General Electric Co.

Electric Lighting.
Allis-Chalmers Mfg. Co.
General Electric Co.
Johns-Manville Co., H. W.
Sturtevant, B. F., Co.
Westinghouse Electric & Mfg. Co.

Electric Motors.
Allis-Chalmers Mfg. Co.
Day, E. B.
General Electric Co.
Sturtevant, B. F., Co.
Westinghouse Electric & Mfg. Co.

Electrolyzer.
National Laundry Machinery Co.

Elevators.
Craig Ridgway & Sons Co.
Economy Engineering Co.
N. Y. Revolving Portable Elevator Co.
Salem Elevator Works.

Employes' Time Recorders.
Pettes & Randall Co.

Engines.
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Exhaust Heads.
Power Specialty Co.
Sturtevant, B. F., Co.

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Feed Water Heaters.
Scaife, W. B., & Sons.

Feed Water Pumps.
Dean Bros. Steam Pump Works.
Goulds Mfg. Co.

Feed Water Purifiers.
American Water Softener Co.
Scaife, W. B., & Sons.

Feeds.
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Felts (for every purpose).
American Felt Co.

Felt Rotary Washers.
Hunt, Rodney, Machine Co.

Felting Machinery.
Hunt, Rodney, Machine Co.

Fender Boards.
Case Brothers.

Filters.
American Water Softener Co.
Hungerford & Terry.
Norwood Engineering Co.
Scaife, W. B., & Sons.

Finishing Compounds.
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Finishing Machinery.
——See Dyeing, Drying, Bleaching and Finishing.

Fire Brick.
Borgner, Cyrus, Co.
Johns-Manville Co., H. W.

Fire Extinguishers.
Badger, E. B., & Sons Co.
Johns-Manville Co., H. W.

Fire Hose.
Boston Belting Co.
Eureka Fire Hose Co.
Goodyear Tire & Rubber Co.

Fire Hydrants.
Norwood Engineering Co.

Fire Insurance.
Home Insurance Co.

Fire Proof Doors and Windows.
Badger, E. B., & Sons Co.

Flax, Tow, Hemp and Jute Machinery.
Fairbairn-Lawson-Combe-Barbour, Ltd.

Fluted Rolls.
Firth, William, Co.
Hood, R. H., Company.
H. & B. American Machine Co.
Leigh & Butler.
Metallic Drawing Roll Co.
Riley, C. E., Company.

Flyers.
Bodden, Wm., & Son, Ltd.
Firth, William, Co.
H. & B. American Machine Co.
Leigh & Butler.
Textile Machinery Co.

Forges.
Sturtevant, B. F., Co.

Friction Clutches.
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Friction Cones.
Evans Friction Cone Co.

Fuel Economizers.
Sturtevant, B. F., Co.

Fulling Mills for Woolen Goods.
Hunt, Rodney, Mach. Co.
Hunter, James, Mach. Co.
Kenyon, D. R., & Son.

Furnaces (Automatic Smokeless).
Murphy Iron Works.

Garnetts.
Hunter, James, Machine Co.
Leigh & Butler.
Smith & Furbush Machine Co.

Garnetted Stock.
Graves, Frank B.

Gas Blowers and Exhausters.
Sturtevant, B. F., Co.

Gas Engines.
Allis-Chalmers Mfg. Co.

Gas Systems.
Kemp Mfg. Co.

Gaskets (Superheated Steam).
Johns-Manville Co., H. W.
Power Specialty Co.

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Gears.
New Process Gear Corporation.

Gear Cutting Machine.
Whiton, The D. E., Co.

General Call Service.
Couch, S. H., Co., Inc.

Generating Sets.
Allis-Chalmers Mfg. Co.
General Electric Co.
Sturtevant, B. F., Co.

Geyser Water Heater.
Sargent's Sons, C. G., Corp.

Gold Transfer Stamps.
Meyercord Company, Inc.

Greases.
Borne, Scrymser Co.
N. Y. & N. J. Lubricant Co.
Royersford Foundry & Machine Co.

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Harness Twine.
Moore, C., & Co.

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Garland Mfg. Co.
Steel Heddle Mfg. Co.

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Heddles.
American Supply Co.
Firth, William, Co.
Lavigne & Suter.
Richards, Atkinson & Haserick.
Steel Heddle Mfg. Co.

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Hoisting Apparatus.
Economy Engineering Co.
Hunt, Rodney, Machine Co.
N. Y. Revolving Portable Elevator Co.

Hose.
Boston Belting Co.
Goodyear Tire & Rubber Co.

Hosiery Boards.
Pearson, J. T.
Philadelphia Drying Machinery Co.

Hosiery Labels.
Kaumagraph Co.
Meyercord Company, Inc.

Humidifying Apparatus.
American Moistening Co.
Carrier Air Conditioning Co. of America.
Cramer, Stuart W.
Parks, G. M., Co.

Humidity Controller.
American Moistening Co.
Carrier Air Conditioning Co. of America.
Cramer, Stuart W.

Humidity Gauge.
Johns-Manville Co., H. W.

Hydraulic Rams.
Power Specialty Co.

Hydro Extractors.
American Tool & Machine Co.
Broadbent, Thomas, & Sons.
Richards, Atkinson & Haserick.
Riley, C. E., Co.
Schaum & Uhlinger, Inc.
Schwartz, L. H. A., & Co.
Tolhurst Machine Works.

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Sauquoit Silk Mfg. Co.

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Jacquards.
Crompton & Knowles Loom Works.
Halton's, Thomas, Sons.

Jacquard Cards.
Case Bros., Inc.

Keyseating Device.
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Keyway Broaching Machine.
Burr & Son, John T.

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Knit Goods, Edgings, Trimmings, Etc.
Chapin, George W.
Cheney Bros.
Friedberger-Aaron Mfg. Co.
Jenkins, E. Wheeler.
Krout & Fite Mfg. Co.
Weimar Bros.

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Merrow Machine Co., The.
Nye & Tredick Co.
Scott & Williams.
Spindler, E. O.
Union Special Machine Co.

Knitting Machine Cylinders.
Paxton & O'Neill.
Stafford & Holt.

Knitting Machinery.
Acme Knitting Machine & Needle Co.
Ainslie Knitting Machine Co.
Ames Knitting Machine Co., A. N.
Boss Knitting Machine Co.
Brinton, H., & Co.
Claes & Flentje.
Cooper, Charles.
Crane Mfg. Co.
Epplers, John, Mach. Works.
Gormly, Robt. W., & Co.
Grosser Knitting Machine Co.
Hemphill Mfg. Co.
Jenckes Knitting Mach. Co.

Alphabetical Index to Advertisers, with page numbers, follows this list.

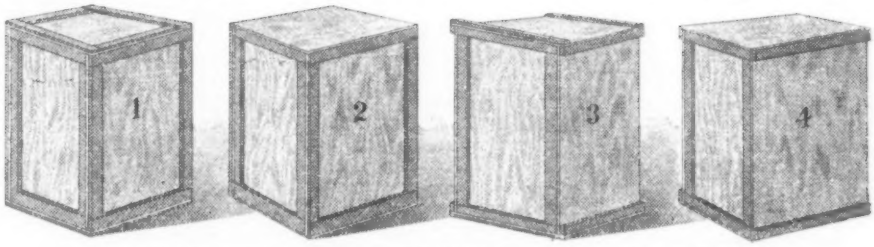
LOOK FOR THIS MARK

ON YOUR RAWHIDE PICKERS
IT MEANS *BETTER WEAVING*

There is no mistaking our trade-mark on our rawhide loom pickers because it is plainly stamped in the hide of each picker. Pickers which bear this trade-mark may be depended upon as being as good as can be made both as to hide quality and workmanship.

GARLAND MFG. CO.
SACO, MAINE

Three-Ply Veneer Packing Cases



LIGHTEST STRONGEST NEATEST

The weight is about forty per cent less than any other case of equal strength, enabling the shipper to save considerable in freight.

The veneer is made of three pieces of wood glued together with the center grain running in the opposite direction from the outside. This makes the strength more than double any other wood of equal thickness.

The sides, ends, tops and bottoms are made of one piece, thereby making a very neat and practically dust and dirt proof package.

If interested write us giving some of your sizes, weights to be carried and material to be packed.

Empire Manufacturing Company, Goldsboro, North Carolina

Lamb Knitting Machine Mfg. Co.
Leighton Machine Co.
Nye & Tredick Co.
Paxton & O'Neill.
Scott & Williams, Inc.
Spindler, E. O.
Stafford & Holt.
Standard Machine Co.
Stibbe, G., & Co.
Taylor, James.
Textile Machine Works.
Tompkins Bros. Co.
Walther, Otto.
Wildman Mfg. Co.

Knitting Machinery (Full Fashioned).
Hirsch, Louis.
Grosser Knitting Machine Co.
Spindler, E. O.
Textile Machine Works.
Walther, Otto.

Knitting Needles and Supplies.
Acme Knitting Machine & Needle Co.
Breedon's, Wm., Sons.
Brinton, H., & Co.
Continental Latch Needle Company.
Cooper, Charles.
Crane Mfg. Co.
Excelsior Needle Co.
Grosser Knitting Machine Co.
Ives, L. T., Co.
Keystone Latch Needle Co.
Lamb Knitting Machine Mfg. Co.
Spindler, E. O.
Wardwell Needle Co.

Labeling Machines.
Acme Staple Co.

Label Wire Stitchers.
Beck, Charles, Co.
Shoemaker, J. L., & Co.

Laces.
Jenkins, E. Wheeler.

Lace Machines.
Spindler, E. O.

Lamps, Electric.
General Electric Co.
Johns-Manville Co., H. W.
Westinghouse Electric & Mfg. Co.
Westinghouse Lamp Co.

Liquid Chlorine.
Electro Bleaching Gas Co.

Lace Leather.
Graton & Knight Mfg. Co

Loom Pickers.
Garland Mfg. Co.
Graton & Knight Mfg. Co.

Looms.
Buhlmann, A. W.
Crompton & Knowles Loom Works.
Draper Company.
Leigh & Butler.
Mason Machine Works.
Richards, Atkinson & Haserick.
Saco-Lowell Shops.
Stafford Co., The.

Loopers.
Grosser Knitting Machine Co.
Hepworth, John W., & Co.
Leighton Machine Co.

Lubricants.
Borne, Scrymser Co.
Dixon, Jos., Crucible Co.
N. Y. & N. J. Lubricant Co.
Royersford Foundry & Machine Co.
S. K. F. Ball Bearing Co.

Lubricators.
Lunkenheimer Co.

Lumpers.
Gerry, George, & Son.
Schofield, William, Co.

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Saco-Lowell Shops.
Taylor, James.

Machinists' Tools.
Whiton, The D. E., Co.

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Johns-Manville Co., H. W.

Marking Pots.
Bradley, A. J.

Measuring and Folding Machines.
Curtis & Marble Machine Co.
Elliot & Hall.
Parks & Woolson Machine Co.

Mechanical Draft.
Sturtevant, B. F., Co.

Mechanical Draughtsmen.
Dodge Mfg. Co.
Sturtevant, B. F., Co.

Mechanical Engineers.
American Tool & Machine Co.
Dodge Mfg. Co.
Myrick, J. W. H.
Philadelphia Drying Machinery Co.
Sturtevant, B. F., Co.

Mechanical Stokers.
Murphy Iron Works.

Mercerizers.
Globe Dye Works Co.
Home Bleach & Dye Works.
Lorimer, Wm. H., Sons Co.

Mercerizing Machinery.
Buhlmann, A. W.
Butterworth, H. W., & Sons.
Klauder-Weldon Dyeing Machine Co.
Schwartz, L. H. A., & Co.
Smith, Drum & Co.
Textile-Finishing Machinery Co.
Wolf, Jacques & Co.

Metallic Fire-Proof Window Frames and Sashes.
Badger, E. B., & Sons Co.

Metallic Packing.
Power Specialty Co.

Metallic Rolls.
Metallic Drawing Roll Co.

Mill Architects.
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Mill Builders and Engineers.
Dean, F. W., Inc.
Ferguson, John W.
Main, Charles T.

Mill Piping.
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Mill Supplies.
American Supply Co.
Bamford & Smith.
Bond, Chas., Co.
Buckley's, Benjamin, Sons.
Dodge Mfg. Co.
Easton & Burnham Mch. Co.
Eureka Fire Hose Co.
Firth, William, Co.
Garland Mfg. Co.
Goodyear Tire & Rubber Co.
Graton & Knight Mfg. Co.
Hess-Bright Mfg. Co.
Hood, R. H., Co.
Kunze, Otto.
Lane, W. T., & Bro.
Leigh & Butler.
Lunkenheimer Co.
N. Y. & N. J. Lubricant Co.
Pairpoint Corporation.
Philadelphia Drying Machinery Co.
Powell, Wm., Co.
Richards, Atkinson & Haserick.
Richardson Bros.
Riley, C. E., Company.
Stephenson Mfg. Co.
Sweet & Doyle.

Mill Telephones.
Couch, S. H., Co., Inc.

Millwrights.
Hunter, James, Machine Co.

Moth Exterminator.
Berlin Aniline Works.

Motors.
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Motor Trucks.
Kissel Motor Car Co.
Reo Motor Truck Co.

Napping Machinery.
Birch Bros., Somerville Machine Wks.
Buhlmann, A. W.
Curtis & Marble Machine Co.
Leigh & Butler.
Parks & Woolson Machine Co.
Schwartz, L. H. A., & Co.

Netting Machines.
Spindler, E. O.

New Woolen Clips.
Kaplan Wool Stock Co., Inc.

Noils (Silk).
Ryle, Wm., & Co.

Non-fluid Oils.
N. Y. & N. J. Lubricant Co.

Numbering Machines.
Beck, Charles, Co.

Oil Cups.
Lunkenheimer Co.

Oils.
Borne, Scrymser Co.
Harding & Fancourt, Inc.
N. Y. & N. J. Lubricant Co.

Oil Stencil and Press Board Paper.
Bradley, A. J.

Oiling Systems.
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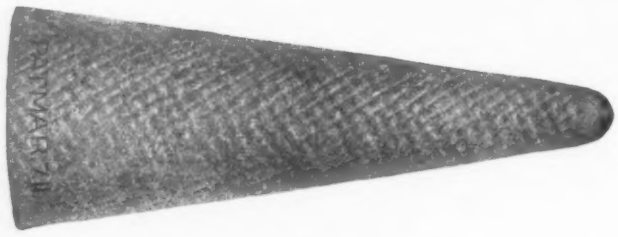

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The smooth round polished point allows the yarn to knit off without catching and breaking

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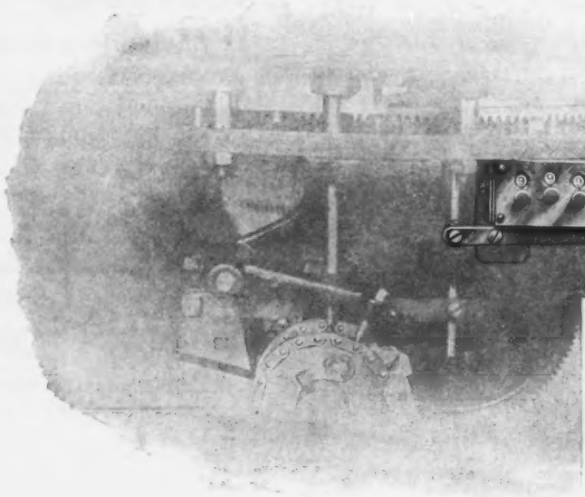

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Low water rates.
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Address **R. H. HEPPELL,**
Secretary of Board of Trade,
Dunkirk, New York

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at Salem, N. Y., on D. & H. R. R., with abundant WATER POWER all year. Fire protection system. A bargain on easy terms. Well adapted for knitting mill.

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Second-Hand Machinery

The Textile World Record carries more advertising of textile machinery, equipment, and supplies than any other textile periodical. Very many of its 400 advertisers use no other.

The reason for its continued success as an advertising medium for the sale of textile machinery is that its subscribers buy about **$250,000,000 worth of textile machinery,** equipment, and supplies (not including raw material) each year.

Being so successful for new machinery it should also prove profitable for the advertising of second-hand machinery, and for the sale of anything of special interest to men in the mill who are held responsible for results, e. g., mills, power-plant equipment, supplies, etc.

Therefore, if you have any textile machinery, mill or power-plant equipment that you do not intend to use again, the Textile World Record offers you the best market for its disposal at a fair price. For further information address:

Classified Advertising Department

TEXTILE WORLD RECORD

144 Congress Street Boston, Mass.

For Sale, at a Big Sacrifice

Complete Trimming Manufacturing Plant

Comprising Braiding Machines, Doublers, Knitters, Looms, Silk Winding Frames. Also Worsted Drawing and Spinning Machinery, Combs, Gill Boxes, Preparers, Dyeing Machine (capacity 5-600 lbs.,) copper and Cedar Dye Kettles, etc. Inquiries or inspection solicited

Espen Loeb & Co., 23d and Hamilton sts. Phila., Pa.

Overseer of Finishing in woolen mill; has worked on worsted, woolen, cotton worsted and piece dye goods, kerseys and meltons; familiar with Birch Bros., Parks & Woolson, Rodney Hunt and Davis & Furber machines; 32 years of age, married; will not go to Vt., Pa., South or to Canada; good reference.
6170, Textile World Record, Boston, Mass.

Overseer of Weaving in woolen mill; has worked on all kinds of worsted suitings and dress goods; familiar with Crompton & Knowles looms; 41 years of age, married; will not go to Me., N. H., Vt., Pa., N. Y., N. J., West, South or to Canada; good reference.
6171, Textile World Record, Boston, Mass.

Overseer of Finishing in woolen or worsted mill; has worked on all grades of kerseys, broad cloths, carriage cloths, dress goods, meltons, cheviots, chinchillas, worsteds, cotton mixed goods, piece dyes and wool dyes; familiar with all makes of machinery; 44 years of age, married; will not go West, South or to Canada; good reference.
6172, Textile World Record, Boston, Mass.

Overseer, superintendent, or agent in bleachery and finishing plant; overseer in cloth room or finishing room in cotton mill; has worked on all classes of cotton goods; has had experience in bleacheries on heavy clay filled work such as sign cloth, bag goods, shoe linings and muslins; 46 years of age, married; familiar with all makes of machinery; good reference.
6173, Textile World Record, Boston, Mass.

Overseer of Weaving in cotton mill; has worked on prints, fine lawns, plain umbrellas with tape selvage; familiar with Kilburn & Lincoln, Mason, Crompton & Knowles plain looms; will not go to Pa., N. Y., N. J., West, South or to Canada; 43 years of age, married; good reference.
6195, Textile World Record, Boston, Mass.

Agent or superintendent and agent in woolen mill; would consider position as styler for commission house; has worked on all grades of woolen and worsted goods; familiar with all makes of machinery; good reference.
6196, Textile World Record, Boston, Mass.

Overseer of Finishing or finishing and dyeing in woolen mill; has worked on woolens, worsteds, piece dyes, dress goods, of all kinds; cottons and cotton worsteds, in fact most everything; familiar with most all makes of machinery; 28 years of age, married; will not go West or to Canada; good reference.
6197, Textile World Record, Boston, Mass.

Second Hand of Carding and combing rooms in cotton mill; has worked on most all kinds of goods from long and short cotton, making fine and coarse yarns, filling and warping; familiar with Kitson pickers, Whitin, Saco & Pettee, Hetherington, Howard & Bullough cards, doublers, combers and speeders; 29 years of age; good reference.
6198, Textile World Record, Boston, Mass.

Overseer of Dyeing in woolen mill; has worked on piece dyeing and raw stock; will not go to Pa., West, South or to Canada; good reference; 50 years of age, married.
6199, Textile World Record, Boston, Mass.

Overseer of Dyeing or superintendent in woolen mill; has worked on all classes of woolens, worsteds, knit goods, hosiery, stock and yarn on the dyeing end and on fancy and plain piece dyes on manufacturing; familiar with all modern textile machinery from the yarn up; partially on yarn carding and spinning; 39 years of age, married; good reference.
6200, Textile World Record, Boston, Mass.

Situations Wanted

Manufacturers who are in need of Superintendents or Overseers for any department of mill work may learn of suitable men upon application by mail or telephone to C. T. DONLEVY, care Textile World Record, 144 Congress Street, Boston., who will give prompt attention to their requirements without charge.

Overseer of Dyeing in woolen mill; has worked on worsted yarns, dress goods, braid slubbing, serge linings, unions, etc.; understands sulphur and bi-sulphite bleaching; familiar with dyeing machinery; 33 years of age, married; will not go South; good reference.
6189, Textile World Record, Boston, Mass.

Superintendent of knitting mill; would consider position as boss carder in knitting mill or boss knitter; has worked on all kinds of knit goods, underwear, hosiery and sweaters; familiar with most all kinds of upright and latch needle machines; 50 years of age; good reference.
6190, Textile World Record, Boston, Mass.

Cooper Fixer or foreman on cooper machines; has had experience on spring needle and latch needle machines, Scott & Williams and Wildman, also Payne winders; has worked on all grades of goods; cotton, merino, silk, lisle and mercerized; 25 years of age; will not go to Canada; good reference.
6191, Textile World Record, Boston, Mass.

Overseer of Spinning in woolen mill; has worked on all classes of goods; familiar with all makes of mules, but prefers Johnson & Bassett and Davis & Furber; 44 years of age, married; will not go to N. Y., N. J., West, South or to Canada; good reference.
6201, Textile World Record, Boston, Mass.

Superintendent of worsted yarn mill; has worked on worsted yarn, Bradford system for knitting and weaving, woolen yarns, shoddy mixtures, etc.; familiar with Prince, Smith, Hall, Stells, Farrar, Crompton and T. W. combs, Furbush cards, Sargent and Hunter washing machines; 40 years of age, married; good reference.
6202, Textile World Record, Boston, Mass.

Overseer of Finishing in woolen mill; has worked on all classes of woolens and worsteds, piece and stock dyes, kerseys, broad cloths, suitings, thibets, meltons, chinchillas, blankets, government cloths, etc.; familiar with all makes of finishing machinery; 25 years of age, married; will not go West, South or to Canada; good reference.
6203, Textile World Record, Boston, Mass.

Overseer of Cotton Weaving; has worked on awnings, cottonades, tickings, denims, prints, lawns, sateens, etc.; familiar with Lowell, Mason, Whitin, Kilburn, Lincoln and Draper looms; 36 years of age, married; will not go to Pa., N. Y., N. J., West, South or to Canada; good reference.
6204, Textile World Record, Boston, Mass.

Overseer of Weaving in woolen mill; has worked on fancy cassimeres, worsteds, cotton dress goods, in fact almost every kind of fancy and plain goods; familiar with Knowles, Crompton, Greenhalgh and cam looms; will not go to Pa., N. Y., N. J., West, South or to Canada; good reference.
6205, Textile World Record, Boston, Mass.

Designer, assistant superintendent and designer in woolen mill; would consider position as overseer of weaving and designer also; has worked on cassimeres, dress goods, fancy woolens, plaid backs, chinchillas, etc.; 30 years of age, married; will not go to Vt., Pa., N. Y., N. J., West, South or to Canada; good reference.
6206, Textile World Record, Boston, Mass.

Overseer of Carding in cotton mill; has worked on ginghams, denims and tickings; familiar with Saco, Lowell, Hetherington, Woonsocket and Whitin machines; 50 years of age, married; has a number of workers in family; good reference.
6207, Textile World Record, Boston, Mass.

Overseer of ring spinning, spooling, warping and twisting in cotton mill; has worked on cotton yarn from 5s to 100s, combed and carded; familiar with Whitin, Lowell, Mason, Draper, Howard & Bullough machines; 31 years of age, married; will not go to Pa., West, South or to Canada; good reference.
6208, Textile World Record, Boston, Mass.

Overseer of Weaving and designer in woolen mill or superintendent; has worked on dress goods, plaid backs, suitings, cassimeres, worsteds, plain and fancy, kerseys, coverts, cheviots, mackinaws, uniform cloths, astrachans and rugs; familiar with Crompton and Knowles looms; 46 years of age, married; will not go to N. J., South or to Canada; good reference.
6209, Textile World Record, Boston, Mass.

Overseer of Weaving in woolen mill; has worked on all kinds of woolen and worsted goods, men's suitings, overcoatings and cloakings; familiar with Crompton & Knowles looms, also some experience with cam looms; 40 years of age, married; will not go to Pa., N. Y., N. J., West, South or to Canada; good reference.
6210, Textile World Record, Boston, Mass.

Fixer in Knitting Mill; has worked on cotton and mercerized hosiery; familiar with Invincible and National machines; 26 years of age, married; good reference.
6211, Textile World Record, Boston, Mass.

Fixer or Foreman in knitting mill; has worked on wool, worsted, cotton and silk hosiery; familiar with Geo. D. Mayo, Acme, Mayo, Banner, Hemphill, Jenckes, Pigeon spring needle machines; Hepworth and Record loopers; Brinton and Wildman ribbers; 35 years of age, married; good reference.
6212, Textile World Record, Boston, Mass.

Superintendent or Overseer in an underwear mill; has worked on ladies' fleeced lined underwear, and men's, ladies' and children's stockings; familiar with the Scott & Williams, Wildman and Brinton knitting machines; Singer, Metropolitan, Merrow and Union Special sewing machines; 24 years of age; will not go South; good reference.
6213, Textile World Record, Boston, Mass.

Overseer of Ring Spinning, warping and spooling in cotton mill; has worked on shirtings, sheetings, print cloths, grain bags, etc.; familiar with Platt Bros., Whitin, Brooks, Saco & Pettee machines; 47 years of age, married; good reference.
6214, Textile World Record, Boston, Mass.

Overseer of Weaving in woolen mill; has worked on woolens and worsteds, fancy and plain, worsted piece dyes, cotton worsteds and mercerized piece dyes, piano felts, printers' bagging, roller and clearer cloth, coverts, venetians, etc.; familiar with both Knowles and Crompton looms, also Knowles cam looms; 37 years of age; will not go to Canada; good reference.
6215, Textile World Record, Boston, Mass.

Master Mechanic; has worked on electric engines and all woolen machinery; 29 years of age, married; good references.
6216, Textile World Record, Boston, Mass.

Overseer of cotton yarn dyeing, bleaching and mercerizing; would consider position as specialty man in large mill doing dyeing; has worked on cotton skeins (common yarn and mercerized) mostly but can handle warps and raw stock also; 27 years of age; will not go to Pa., N. J., West or South; good reference.
6217, Textile World Record, Boston, Mass.

Overseer of ring spinning, spooling and warping in cotton mill; has worked on everything in the cotton line; familiar with New England makes of machinery; 32 years of age; married; will not go to Pa.; good reference.
6218, Textile World Record, Boston, Mass.

Superintendent or assistant superintendent in knitting mill; has worked on very high class full fashioned goods of wools, worsteds and silks, also a great deal of experience on cut goods; familiar with mostly all makes of flat knitting machines, also power and circular machines; 26 years of age, married; good reference.
6219, Textile World Record, Boston, Mass.

Superintendent or would consider position as overseer of spinning in cotton mill; has worked on fine and coarse counts, also hosiery yarns; familiar with all makes of machinery; 41 years of age; good reference.
6220, Textile World Record, Boston, Mass.

Overseer of twisting, winding, spooling and beaming; has worked on worsted, cotton and worsted, silk and worsted goods; familiar with twisting, spooling, winding and beaming machinery; 30 years of age, married; good reference.
6221, Textile World Record, Boston, Mass.

Overseer of Cutting in underwear mill; has worked on ladies', misses' and boys' underwear in the tuck stitch and the one and one; 23 years of age, married; will not go to Canada; good reference.
6222, Textile World Record.

Overseer of Knitting; has worked on stockinet goods, jersey cloths, astrachans, elderdowns, athletic goods, rubber and glove linings, bathing suits, elastic jerseys, underwear and some experience on sweaters; familiar with Crane, Tompkins, Campbell & Clute, Gormley, Leighton and Stafford & Holt machines; 40 years of age, married; good reference.
6143, Textile World Record, Boston, Mass.

Overseer of Knitting; has worked on sweaters, ties, toques, underwear; cotton, silk and wool, both high class goods and cheap cotton goods; familiar with Scott & Williams, Wildman, Nye & Tredick, Stafford & Holt, Huse, Brinton and Fisher machines; 30 years of age, married; will not go to Mass., R. I., or South; good reference.
6146, Textile World Record, Boston, Mass.

Finish Percher, second hand in dry finishing in woolen mill, or boss burler and sewer; has worked on chinchillas, meltons, plaid backs, skein dye and piece dye suitings and ladies' dress goods; familiar with Curtis & Marble, Parks & Woolson shears and Miller & Gessner presses; 40 years of age; will not go South or to Canada; good reference.
6148, Textile World, Record, Boston, Mass.

Chief Engineer or master mechanic; has a good knowledge of electricity, also machines; familiar with any modern turbine; 46 years of age, married; good reference.
6149, Textile World Record, Boston, Mass.

Overseer of Dyeing on cotton piece goods; has worked on all grades of these goods; familiar with machinery used for dyeing these goods; 33 years of age; good reference.
6150, Textile World Record, Boston, Mass.

Assistant Designer in cotton mill; has worked on blankets, robes, comfortables, huck and terry towels, crepes, silk dress goods, ratines, cotton dress goods, marseilles and satin quiltings, narrow fabrics and labels; familiar with Crompton & Knowles jacquard and dobby Whitin looms, Gem looms, Crompton & Thayer looms; 23 years of age, married; good reference.
6151, Textile World Record, Boston, Mass.

Overseer of Spinning in woolen mill; has worked on wool, shoddy and cotton waste and silk noils; familiar with Davis & Furber and Johnson & Bassett machines; 37 years of age, married; will not go to Me., Vt., Pa., N. J., West, South or Canada; good reference.
6152, Textile World Record, Boston, Mass.

Second Hand in woolen card room; has worked on satinets and fancy woolens; familiar with Davis & Furber, Lombard and Barker machines; 22 years of age; will go to Mass., R. I. and Conn.; good reference.
6153, Textile World Record, Boston, Mass.

Finished Percher in woolen mill; has worked on broad cloths, venetians, kerseys and worsteds; familiar with Parks & Woolson shears; 40 years of age, married; will not go to Mass., West, South or to Canada; good reference.
6154, Textile World Record, Boston, Mass.

Boss Dyer of Cotton and cotton warp piece goods, or second hand; has worked on calico goods, ducks, drills, rain cloths, flannelettes, batistes, cottons, linings, worsteds, print cloths, lawns, all piece goods, etc.; familiar with all classes of machinery as used in piece dye works, extractors, kettles, jigs, boxs, washers, nappers, padding machines, mangles, etc.; 28 years of age; good reference.
6156, Textile World Record, Boston, Mass.

Superintendent, assistant superintendent or overseer of spinning, spooling and warping in cotton mill; has worked on both fine and coarse numbers; familiar with both English and American makes; 43 years of age, married; will not go South or to Canada; good reference.
6176, Textile World Record, Boston, Mass.

Overseer of Ring Spinning in cotton mill; would consider second hand position; has worked on combed, carded, Peeler, Sea Island, cotton waste, Egyptian and all short stock; familiar with Fales & Jenks, Saco & Pettee, Whitin, Mason, Howard & Bullough and Lowell frames; 24 years of age; good reference.
6177, Textile World Record, Boston, Mass.

Overseer of Woolen Spinning; has worked on all classes of woolen goods; familiar with Johnson & Bassett and Davis & Furber mules and operators; 28 years of age, married; good reference.
6178, Textile World Record, Boston, Mass.

Superintendent or assistant manager in cotton mill; has spun cotton yarns from 8s to 60s on ring frames; has woven all sorts of plain cotton cloth; familiar with cotton spinning and weaving machinery; 33 years of age; good reference.
6179, Textile World Record, Boston, Mass.

Overseer of Knitting or looping in hosiery mill; has worked on boy's, children's, men's and women's hose, both soft and mixed yarn; familiar with Acme, Mayo, Jenks, Standard, Boss, Keystone, and all classes of ribbers and loopers; 34 years of age, married; will go West and South; good reference.
6180, Textile World Record, Boston, Mass.

Overseer of Spinning in woolen mill; has worked on dress goods, men's wear, etc., using all wool, cotton and shoddy mixes, both high and low grade stock; spinning yarn from 7/8 run to 8 run; familiar with Davis & Furber and Johnson & Bassett machines; 32 years of age, married; will not go to Vt., Pa., N. Y., N. J., West, South or to Canada; good reference.
6181, Textile World Record, Boston, Mass.

Overseer of Carding or spinning in woolen mill; has worked on all wool, cotton and wool mixes; cotton, wool and shoddy mixes, and all cotton; familiar with Smith, Davis & Furber cards and Davis & Furber mules; 45 years of age, married; will not go to Vt., Pa., N. Y., N. J., West, South or to Canada; good reference.
6182, Textile World Record, Boston, Mass.

Superintendent Wanted

First-class Superintendent for a mill making Tapestry, Brussels and Axminster Carpets. High grade position for a first-class man. All letters treated strictly confidential. Address A. X., Textile World Record, Boston, Mass.

NEW MACHINERY, Used About Four Months, FOR SALE CHEAP

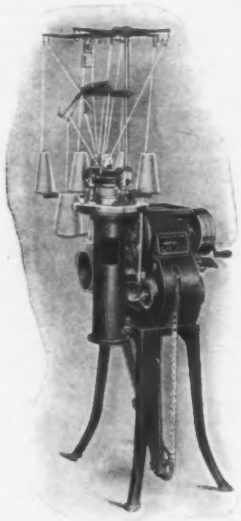
We have the following machines which were purchased new and run about four months, when the mill closed. Will sell very reasonable.

Six Nye & Tredick Knitting Machines, 8 feed, 11 needle, 36 gauge, end stop motion. Three No. 115—14, 15 and 16 inches, and three No. 118—17, 18 and 19 inches.
One No. 194 Union elastic stitch button sewer.
One Style 35 E, No. 10880, Merrow shell machine.
One U. S. interlocking stitch machine, style 15400 A.
One U. S. twin needle drawer band machine, Style 7900,380.
One U. S. twin needle lace machine, Style 1030038.
One Singer plain sewer, Class 95-1.
One Singer button hole machine, Class 71-1.
Two 5 H. P., Type C. C. L., 3 phase Westinghouse motors.
Line shaft, hangers and pulleys for six knitting machines.
Line shaft, hangers and pulleys for sewing table.

The above machinery is just as good as when purchased new. If you are in need of any or all of it, submit us your best offer as we wish to close it out at once. Any further information will be promptly furnished. CAMBRIDGE SPRINGS KNITTING CO.,
Cambridge Springs, Pa.

Here's the Machine that Saves 7 to 15 Cents a Dozen

On the Manufacturing Cost of Half Hose



IMPROVED MODEL F MACHINE

Isn't it interesting to you to know that our IMPROVED MODEL F MACHINE for making half hose will effect a saving in cost of manufacture of from 7 to 15 cents per dozen?

The machine is simple, requires no skilled operators, makes all qualities and gauges.

We will gladly send you samples and full information.

Established 1865

SCOTT & WILLIAMS, INC.

88 PEARL STREET, - BOSTON, MASS.

366 Broadway, New York 236 Chestnut St., Philadelphia 6 Devereux St., Utica, N. Y.

New Mills.

Maine, Lewiston. P. C. Jutras and Emeril Beliveau of this city have begun manufacturing hosiery in a small plant at 411 Lisbon St. under the firm name of Beliveau & Jutras. Men's worsted hosiery will be the chief product. Mr. Jutras was formerly connected with similar concerns in Lewiston and Portland.

*Massachusetts, Holyoke. It is understood the new silk hosiery mill project with which James Parfitt was recently reported connected, will organize under the style of the Holyoke Hosiery Company with capital stock of $100,000, and install machinery in a building at Race and Cross Sts., beginning manufacturing with 30 or 40 hands under the management of Thomas Roe, formerly superintendent of the McCallum Hosiery Company, at Northampton. Arrangements are being made for equipment.

*New Jersey, Paterson. The Ward Silk Jersey Company is the correct name of the concern which we recently reported as organizing under the name of the Ward Silk Company. Silk jersey cloth, nets, veilings and similar goods will be manufactured on six warp knitting looms, operating by electric power. At present the product will be dyed and finished elsewhere, but the men interested expect to add dyeing and finishing departments in the near future. Peter A. Ward is president, manager and buyer.

New York, Cohoes. The Random Knitting Company, organized by George W. Cummings and William G. McCann, have leased the fifth floor of No. 1 Victor Mill and will manufacture knit wash cloths and towels, giving employment to about 25 hands.

*North Carolina, Elizabeth City. Plans and specifications for the mill to be built for the new Pasquotank Hosiery Company are in the hands of contractors and construction bids will be received until May 15. The building will be 1-story high, 150 by 50 feet, and as noted in previous report will be equipped with machinery for a daily capacity of 300 dozen pairs of hosiery. The organization of this company with capital stock of $50,000 was reported in March. Noah Burfoot, a local business man, is president; F. V. Scott, vice-president; and Dennis Van Horn, manager.

*North Carolina, Halifax. Archie McDowell, president of the Scotland Neck (N. C.) Cotton Mills, has completed arrangements for establishing the previously noted Halifax Hosiery Mills. The manufacture of ribbed hosiery will be started within a few weeks with 40 knitting machines. All business is done through the office of the Scotland Neck Cotton Mills.

*North Carolina, Morganton. F. S. Drury has decided to install 25 knitting machines in his proposed hosiery plant and will purchase this machinery before July 1.

*Pennsylvania, Coatesville. The Coatesville Knitting Mills, recently incorporated with capital stock of $20,000, of which $15,000 has been paid in, have started manufacturing seamless hosiery and expect from present indications to build up a large business on 144-needle goods. They are operating 48 knitting machines, 10 German loopers and several ribbers. This is a home industry and has no relation to the project recently detailed of Philadelphia parties being interested in establishing a knitting industry in Coatesville. The project in which Philadelphia parties were interested has been dropped. Alfred Goodfellow is president; John Q. Adams, vice-president; R. L. Batteiger, secretary, treasurer, and buyer; and C. M. Gerhard, superintendent. H. W. Anthony, of Herbein & Anthony, Strausstown, is also interested. Gallagher, Merryman & Company, New York, are the selling agents.

*Pennsylvania, Philadelphia. The Commonwealth Knitting Co., with a capital of $25,000, Charles S. Chestnut, president; Samuel Livingston, treasurer, and Harry Sarfert, manager, are installing their equipment consisting of 20 latch needle knitters and 6 loopers in the tenement mill at Mascher and Jefferson Sts., the plant to be run on silk, art silk and mercerized plaited hosiery for men and women, 220 needle goods; the production to be sold through J. P. Quinlan, 346 Broadway, New York. They will buy natural and art silk, 2/24 to 2/60 and 1/60 mercerized and fine worsted yarns.

Pennsylvania, Pottsville. Stein & Schock are installing six knitters and ten sewing machines to be operated on cotton union suits for women.

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Enlargements and Improvements.

*Alabama, Anniston. Good progress is being made on the construction of the addition to the plant of the Anniston Knitting Mills Company, which has been outlined in previous reports. This enlargement includes a mill for knitting with a separate dye house, both of the most modern construction and equipment, in which 75 knitting machines, 75 ribbers, 25 loopers, etc., will be installed.

Connecticut, Winsted. The New England Knitting Company is making some repairs to the rear buildings of its plant.

Maine, Lewiston. Laurendeau Bros., who conduct a boot and shoe store at 282 Lisbon St., are making knitted wool stockings in connection with their shoe store and have given an order for five new knitting machines.

*Tennesee, Englewood. The knitted underwear department being equipped by the Eureka Cotton Mills will begin manufacturing in July or August. This concern, which manufactures cotton yarns, wrapping twine and sewing thread, is building an extension 100 feet long to be used for the manufacture of two-piece underwear and union suits for men and is also constructing another addition which will be equipped for bleaching the product of the knitting plant. Fifteen knitting machines have been purchased and the new department is planned for 45 or 50 machines.

Vermont, Bennington. The Bennington Hosiery Company which recently took over the Tiffany Mill has changed from steam and water power to electric power.

When a Customer Buys a $65 Machine

and then uses advertising space costing about $45.00 per square inch to tell their customers they have it—we think it time to tell you that

We Made It!

and, furthermore, that it was a strictly stock machine.

Note the Reproductions of the Advertisements

Saturday Evening Post, Oct. 4, 1913

A Test for Strength

Every sample submitted to us and a swatch from every piece of woolen we buy must meet a high tensile strength.

Two metal hands pull it from above and below until it breaks. A hand on a dial above swings around and shows how many pounds of pressure the cloth will stand.

We are "cranks" about this and you'll be glad we are when you note how your Kirschbaum suit wears.

Saturday Evening Post, May 9, 1914

(Strength test)

Gripped by the metal hands of this machine, a sample of each Kirschbaum woolen is pulled from above and below until it breaks.

The hand on the dial of this machine registers the strain. Every Kirschbaum woolen must show standard strength or the fabric is rejected.

Here's what they wrote to us

"It gives me great pleasure to advise you that the testing machine we received from you some time ago is filling a long felt want in our establishment, and is quite an improvement over the old testing machine we had in use heretofore."

"We take pleasure in recommending the machine to anyone having use for a machine for this purpose."

A. B. KIRSCHBAUM CO., Philadelphia, Pa.

Kirschbaum is only one of a large number of our customers who have praised these machines

We also build Yarn Testers and other testing apparatus

Catalogue "C," just published, is free for the asking

Henry L. Scott Co., 227 Eddy Street, **Providence, R. I.**

KNITTING MILL NEWS

*Maine, Norway. T. C. Hunton, who is now manufacturing women's hosiery in Brunswick under the name of the Brunswick Knitting Mill, will move his equipment to Norway before the first of June to the building known as the old Horne factory on Marston St. which has been repaired and adapted for the manufacture of hosiery. Machinery additions will be made, bringing the equipment up to 30 knitting machines and 5 sewing machines on which lines of children's and ladies' hosiery will be manufactured from 10s and 24s carded and 36s combed Peeler yarns. Electric and steam power will be used. Mr. Hunton attends to the buying.

*Massachusetts, Boston. Plans for the addition to the plant of the Peerless Knitting Mills Company, which is to be erected on the land recently purchased adjoining their property, call for a 2-story brick structure, 40 by 100 feet. As noted in a previous report forty knitting machines and fifty sewing machines will be added to the present equipment. Men's ribbed underwear and union and combination suits in cotton, worsted, silk and merino are manufactured.

Massachusetts, Malden. The Yale Knitting Company has purchased from the city 6,000 square feet of land adjoining its present property and is having plans prepared for a 4-story addition, 50 by 100 feet, of mill construction. A decision has not been reached as yet as to whether this addition will be constructed at once and no contracts have been awarded. The enlargement is to increase the output of the Yale Knitting Company's present lines of men's and women's full fashioned union suits and shaker and full fashioned sweaters. L. D. Marsh is treasurer and buyer.

Massachusetts, Stoughton. Charles Stretton & Son Company are building a brick addition, 35 by 15 feet, 2 stories high, to be used for bleaching and dyeing purposes. They are manufacturers of men's, women's and children's ribbed underwear and union suits.

*New York, Fulton. Five knitting machines and six sewing machines, a new 60 h. p. boiler, and some other equipment are being installed in the plant of William H. Spanswick Mfg. Company, makers of children's ribbed and fleeced underwear and union suits.

*New York, New Hartford. Part of the new mill of the Olympian Knit Goods Company is in use and all the new space will be occupied within the next two months. The new mill is 4 stories high, 154 by 50 feet, of brick and reinforced concrete construction. A new boiler and engine house also have been constructed and recently put in operation.

New York, Owego. Julius Kayser & Company will make changes in the local plant to provide greater protection from fire, including the building of a brick fire tower. It was reported several weeks ago that the company was considering establishing an underwear manufacturing department in the Owego branch. The main office is at 220 Taffe Pl., Brooklyn.

*North Carolina, Durham. The new No. 9 Mill of the Durham Hosiery Mills Company, now under construction by the Fisk-Carter Construction Co., of Greenville, S. C., is to be completed October 15. The contract price of the building is $90,000. The new mill is directly behind No. 1 Mill and forms the biggest single addition that the Durham Hosiery Mills Company have ever made to their plants. The new warehouse that is being constructed is ready for the roof.

North Carolina, Newton. Twenty-one new knitting machines have been ordered by the Fidelity Hosiery Mills Company, manufacturers of women's hosiery.

*Ohio, Cleveland. The complete plant of the Fashion Knitting Company, whose financial troubles were recently noted, has been sold in the local bankruptcy court to the Favorite Knitting Mills for $10,200. The property has been transferred. The Favorite Knitting Mills will continue the Fashion plant in operation as a branch of their main plant at 1388 W. 6th St. This purchase adds to their equipment 18 knitting machines and 14 sewing machines suitable for manufacturing various lines of sweater coats and knit goods.

Oregon, Portland. The Portland Knitting Company, manufacturers of mittens and gloves, have purchased the factory of the Nollan Knitting Co. and will continue to operate it under the name of the Nollan Knitting Co., Inc. A lot and building for factory purposes, located at 1262 E. Stark St., has been purchased for this business. At present 18 knitting machines and 14 sewing machines are being operated on high grade sweaters. J. A. Zehntbauer is president; C. R. Zehntbauer, vice-president and C. C. Jantzen, secretary, manager and treasurer. The main office is located at 150 Third St., Portland.

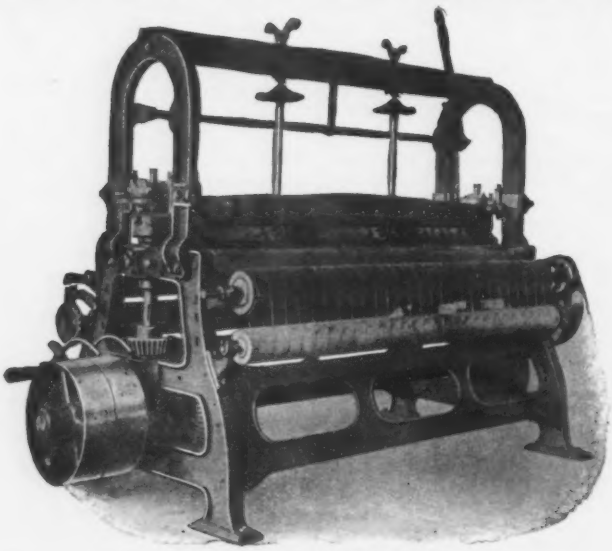
*Pennsylvania, Chambersburg. A rearrangement of equipment is being made at the Blue Ridge Knitting Company, which it was recently noted has increased its manufacturing space at the local branch. Owing to the crowded condition of the equipment on the first floor the ribbers have been moved to the second floor. The plant now has 146 knitting machines. John Smith is superintendent of the local plant. The buying is done at the main plant at Hagerstown, Md.

*Pennsylvania, Grill. Harry M. Body has been succeeded by the Grill Hosiery Mill. It was noted earlier in the month that contract had been awarded for an addition to the plant which will be 60 feet long and the equipment is to be increased to 75 knitting machines. This enlargement will be completed about July 1. Paul A. Rich and H. M. Body are the buyers.

Pennsylvania, Port Carbon. The Superior Knitting Company is building a new mill on Coal St. Cotton underwear is manufactured.

Pennsylvania, Reading. Edward R. Ammon, a manufacturer of women's cotton hosiery, has bought a 2-story factory building near the new Penn Street Bridge for $6,000 and has moved to the new location. Additional equipment has been added and Mr. Ammon's plant now contains 40 knitting machines and 5 sewing machines, making women's gauze hosiery.

CHINCHILLA MACHINE



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And,--
You have become convinced that, no matter what you are now bleaching, you can much improve your goods by throwing out lime or sulphur and substituting Peroxide.
Now then,--
When are you going to start?
Any further advice free of charge.

THE ROESSLER & HASSLACHER CHEMICAL CO.
NEW YORK

KNITTING MILL NEWS

*Pennsylvania, Shamokin. The dyehouse and boiler plant were damaged in the recent fire which burned the dyeing, bleaching and finishing departments of the Shamokin Knitting Mills. The loss is estimated at $15,000. Work is being rushed to rebuild and to resume manufacturing at the earliest possible date.

Mills Starting Up.

*New York, Cohoes. Manufacturing has been started by the new Random Knitting Company which has installed five knitting machines for making knitted wash cloths and knitted towels on the fifth floor of No. 1 Victor Mill, at Ontario and Olmstead Sts. The capital stock of the new company is $30,000. George W. Cummings is president; William G. McCann, treasurer and buyer; and George W. Cummings, Jr., superintendent.

*Pennsylvania, Intercourse. The branch of the Ephrata (Pa.) Hosiery Mill Company at Intercourse, has begun manufacturing.

*Virginia, Williamsburg. Officers of the Bryant Timber Company, who bought the Williamsburg Knitting Mills property, will soon organize a new company under a new name to operate the mills. A name has not been decided upon. It was noted in a previous report that R. J. Dunning of Aulander, N. C.; R. M. Bryant, of Franklin, Va., and N. B. Bryant, of Butterworth, Va., president, treasurer and vice-president, respectively, of the Bryant Timber Company, have purchased the Williamsburg Knitting Mills property for $40,000, or about one-fourth of its value. Mr. Dunning will probably be business manager and John McGinnis, who was superintendent when the mills were last operated, will be superintendent of manufacturing.

New York, New York City. It is reported the Pioneer Knitting Mills, Inc., 3635 Third Ave., New York, and the William N. Daniels Knitting Mills of Yonkers, have been consolidated. The Yonkers plant will be discontinued and the plants will be combined at 3653 Third Ave., under the name of the Pioneer Knitting Mills.

New York, Oswego. It is again reported locally that the Ontario Knitting Mill will be reopened by the reorganized Frisbie & Stansfield Knitting Company and operated as a yarn mill.

New York, Utica. It is reported that the proposed reorganization of the Frisbie & Stansfield Knitting Company and its allied interests is being worked out satisfactorily and that details will soon be announced.

Mills Shutting Down.

Pennsylvania, Philadelphia. The Laurel Knitting Co., located at 73 to 79 Laurel St., where they operated an equipment on knitted neckwear, have gone out of business, disposing of their machinery to other parties. They operated 10 knitting and 2 sewing machines.

Woolen Napper

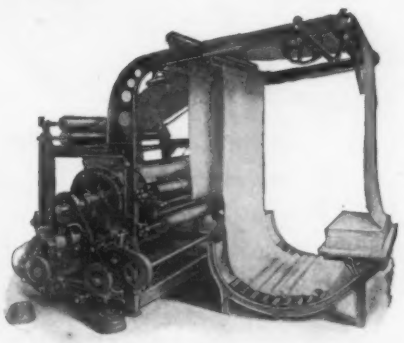
Double Acting Geared Ball Bearing Workers

Discriminating Mills are buying it

Price — Low

Production — High

Longevity — Great



Parks & Woolson Machine Co

Springfield Vermont

POWELL VALVES

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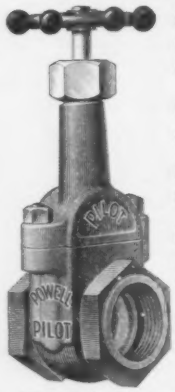

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¶ 2. Metal distributed to meet the most wear.

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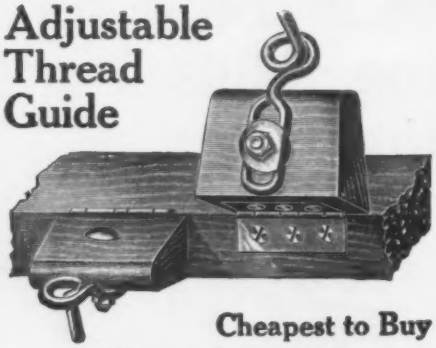

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MIDDLETOWN, CONNECTICUT

KNITTING MILL NEWS

*North Carolina, Denton. M. C. Crawford and J. M. Daniel are interested in the Denton Knitting Mill Company reported incorporated a week ago with capital stock of $10,000.

North Carolina, Morganton. The Vaudois Knitting Mills, Inc., will soon be prepared to begin manufacturing. They are to begin business with $25,000 subscribed, making hosiery. B. F. Davis is president and John Long, treasurer and buyer.

Ohio, Bowling Green. A report from the Monarch Underwear Company states that the output is being increased and that it is only a question of time when the plant will have to be enlarged.

Ohio, Cleveland. An increase has been made in the capital stock of the Cleveland Knitting Mills from $100,000 to $125,000. Fancy knit goods, shawls, sweater coats and similar goods are manufactured.

Ohio, Elyria. The Elyria Knitting Company has been incorporated with capital stock of $10,000 by J. C. Hill, H. W. Wurst, H. W. Ingersoll, W. H. Vanoster and C. E. Blanchard. Mr. Hill is treasurer of the Fay Stocking Company here.

Pennsylvania, Allentown. It is reported that a new concern known as the D. & S. Mfg .Company has started up a knit underwear plant at 954 Jackson St.

Virginia, Chase City. H. P. Butcher & Co., New York selling agents, report that they have no arrangements for establishing an underwear mill at Chase City.

Pennsylvania, Philadelphia. Parties said to be engaged in the cut necktie business in this city have recently contracted for an equipment of knitting machines for the purpose of making a line of knitted neckwear. The names of the parties could not be ascertained, but the home address of one of the company is 3648 N. 15th St.

Pennsylvania, Rosedale. It is reported that ground has been broken for a hosiery mill in East Rosedale.

Rhode Island, Central Falls. It has been found necessary to operate the carding department of the Blackstone Stocking Company on an overtime schedule in order to keep up with the other departments and it is reported that orders on hand indicate a good business for some time. Men's and women's seamless and women's and children's ribbed woolen, worsted and merino hosiery are manufactured.

Rhode Island, Providence. The New England Hosiery Company has been incorporated with capital stock of $10,000 to manufacture and sell hosiery and it is reported will locate in Providence. The incorporators are Ralph B. Leinbach, Gilbert R. Cordin and Madeline C. Leinbach.

*Tennessee, Bluff City. Articles of incorporation have been filed by the Bluff City Hosiery Company with capital stock of $20,000. The incorporators are W. B. Bachman, E. S. King, P. H. Miller, R. W. Rush and J. P. Worley. The efforts to organize a hosiery company at Buff City have been noted previously.

FIBER COVERED SHUTTLES

Shuttles covered with American vulcan fiber have been used for more than ten years in Europe and are now being introduced into the American market by Otto Kunze, Room 501, 30 Church St., New York City. These shuttles are imbedded with sheets of fiber which are claimed to prevent them from breaking in two when thrown out of the loom, also from splitting or splintering, and the bottom and two sides become smoother with use, thereby preserving the reed, picker straps, picking sticks, etc. It is also claimed that the breakage of the warp in filling is less and therefore less attention is required from the operator.

SALES AND ENGINEERING OFFICE

The Dodge Manufacturing Company, with the increased demand for its product, has opened South Western sales and engineering offices at Dallas, Tex., and a distinct sales and engineering office at Grand Rapids, Mich. J. H. Drapier of the general sales department, Mishawaka, has been made manager of the Dallas addition and Oscar W. Gregg, late of the Gilbert Pulley Company, representative at Grand Rapids. A short time ago the company opened a distinct office at Indianapolis in charge of E. M. Carver. Branches and warehouses with complete staffs of engineers and large stocks are maintained at Chicago, New York, Boston, Pittsburgh, Philadelphia, Cincinnati, St. Louis, Minneapolis and Portland.

CHANGE OF NAME

The American Hosiery Manufacturing Company of Montello, Pa., have changed the name of their company to Highland Hosiery Company, Montello, Pa. The business will continue under the same management.

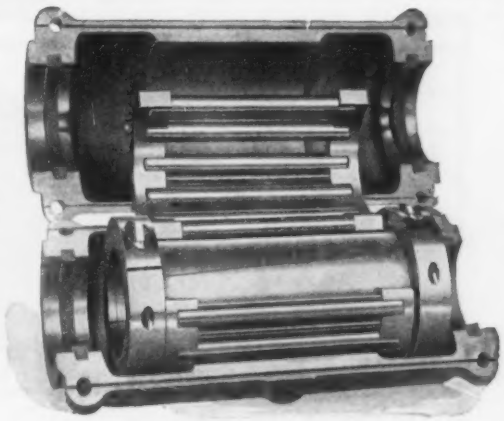
PERSONALS.

Joshua Robinson, for thirty-five years overseer of weaving at the Lower Pacific Mills, Lawrence, Mass., and regarded as one of the leading authorities on weaving, died at his home after a long illness. His widow and several children survive him.

David Strong, president of the Winsted Hosiery Co., Winsted, Conn., died at his home in that town at the age of 88 years. He was prominent in politics, a Republican, and represented the town in the Legislature for fourteen years.

Ex-Mayor Hezekiah S. Russell died at his home in Pittsfield, Mass., at the age of 79 years. He was a successful business man, having been connected in the woolen industry with his brother for a number of years and was also the proprietor of a machine shop in that city. His political life included two terms as Mayor of Pittsfield and one term in the Massachusetts House of Representatives. He was a charter member of the Pittsfield Masonic lodges and belonged to many other organizations.

C. H. McDaniel, overseer of spinning at the Dunson Mills, LaGrange, Ga., died suddenly as a result of a stroke of apoplexy.



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"SELLS"
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in their thousands of applications in the largest plants in the country, are demonstrating from year to year, that this saving is continuous, and that years of use show practically no wear whatever. Let us send a Royersford *Engineer* to analyze your conditions, and *show* the manifold economies that "Sells" Roller Bearings bring with them. No obligation whatever.

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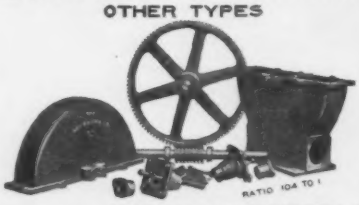
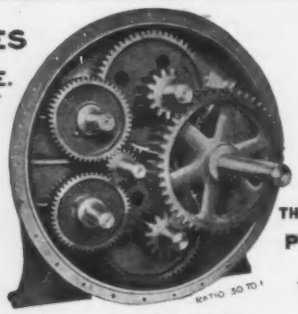
GEARS RUN IN OIL. CASES DUSTPROOF
OTHER TYPES





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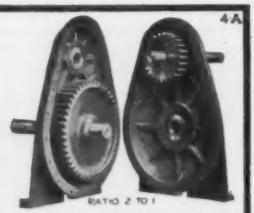

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SPECIAL MACHINERY BUILT TO PLANS AND SPECIFICATIONS

Leonard Weldon was an **inventor.**

Born in Nottingham, England, he came to the United States in 1882.

His first Dyeing Machine was patented in 1886. He died in 1901.

Between 1886 and 1901, 17 U. S. patents were granted to him for improvements in Dyeing Machines.

All of these patents have expired with the exception of 2.

The numbers and dates of the two unexpired patents are:

645698, March 20, 1900
659906, October 16, 1900

A search of the United States Patent Office records on March 9, 1914, showed that neither of the above patents had ever been transferred to any one by Leonard Weldon or his heirs and were at that time the property of the Leonard Weldon estate.

March 9th, 1914, Katherine Weldon and Samuel H. Telford, executrix and executor of the last will and testament of Leonard Weldon, deceased, assigned to John H. Giles, the president of the John H. Giles Dyeing Machine Co. of Amsterdam, N. Y., and Taunton, Mass., Patent No. 645698, of March 20, 1900.

By this purchase we become the sole and exclusive builders of machines under the oldest unexpired Leonard Weldon patent

John H. Giles Dyeing Machine Co.
Taunton, Mass. Amsterdam, N. Y.

STANDARD "G"

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¶ Your investigation desired.

¶ Can be seen running at all times.

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KNITTING MILL NEWS

*Tennessee, Charleston. Efforts are being made to conclude arrangements for the new hosiery mill project. The company has been chartered with authorized capital stock of $50,000 under the name of the Charleston Hosiery Mills and has been organized with the following officers: W. J. Eldredge, president; T. B. Saulpaw, vice-president, and J. E. Quisenberry, cashier of the Hiwasse Bank, Charleston, secretary and treasurer.

*Tennessee, Rogersville. The Rogersville Knitting Company, recently incorporated with authorized capital stock of $50,000, is endeavoring to complete arrangements for the projected plant.

Texas, Nixon. P. Toms, Mayor of Nixon, is trying to secure a hosiery knitting industry.

.....

Personals.

A. J. Philbrick, overseer of knitting at the Penman's Ltd. Mill at Paris, Ont., Canada, has been appointed superintendent of that mill.

George E. Fettig, formerly superintendent of one of the local mills in Cohoes, N. Y., has been appointed suerintendent of the Racine Underwear Co., Stevens Point, Wis.

Charles H. Porter, superintendent of the Penman's Ltd., Paris, Ont., Canada, has resigned his position with that company to accept a similar one with Julius Kayser & Co. of Brooklyn, N. Y.

George A. Vosburgh has been appointed manager of the underwear department at the Lebanon Mill Co., Pawtucket, R. I. He was formerly employed as superintendent at the Wright's Health Underwear Co., Cohoes, N. Y.

H. N. Favor has acceped the position of overseer of knitting at the Contoocook Mills Corporation, Hillsboro, N. H.

L. W. Tiffany, president and general manager of the New England Knitting Co., Winsted, Conn., succeeds the late David Strong as president of the Winsted Hosiery Co., same city.

H. H. Trent has accepted the position of overseer of spinning at the Tidewater Knitting Mills, Portsmouth, Va. He formerly held this position.

Lawrence J. Harrington has been appointed general manager of the Elliott Manufacturing Co., Manchester, N. H.

Bart Rollins has accepted the position of overseer of dyeing at the Ashland Knitting Co., Ashland, N. H. He comes from Laconia, N. H.

Robert A. Ives has been appointed overseer of finishing at the Athens Knitting Mill, Athens, N. Y.

F. W. Linke has accepted the position of overseer of knitting at the Fargo Knitting Mills, Fargo, N. D.

Thomas Roe, superintendent of the McCallum Hosiery Mill, Northampton, Mass., has resigned his position with that company to accept a position with a new company which is starting operation at Holyoke, Mass.

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Moth Exterminator
For the protection of your woolen and worsted goods in storage
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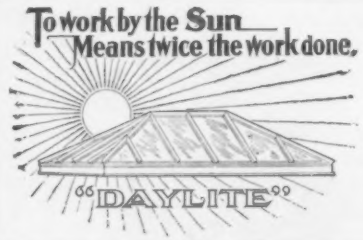

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FOSTER SUPERHEATERS

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Arlington Machine Works

TEXTILE FINISHING MACHINERY

ARTHUR BIRCH, Proprietor

Arlington Heights (near Boston), Mass.

WOOLEN.

New Mills.

*Canada, Ontario, Arnprior. It is expected the new mill to be established here by the Arnprior Felt Company will be running by October. The concern is located temporarily at Galetta, manufacturing felts and similar goods. The new plant will have three sets of cards, spinning equipment, felt looms, and finishing machinery. J. T. Griffith is manager.

*Connecticut, Norwalk. The branch plant being established here by the Mianus Mfg. Co., Coscob, Conn., will be located in the Bishop Mill property, which was formerly occupied as a branch plant by the Salt's Textile Mfg. Company of Bridgeport. As noted in another part of this issue the Mianus Mfg. Company has purchased the equipment of the Derby Fur Fabric Mfg. Company and the Derby Worsted Company of Derby, Conn., and at the present time is occupied with the removal of this equipment from Derby. The finishing machinery will be removed to Coscob. Carding, spinning and weaving machinery, including 6 sets of cards, and 20 looms, will comprise the equipment of the local branch and will be used to produce cloth suitable for imitation fur fabrics, plushes and carriage and automobile robes. The product of the Norwalk plant will be shipped to Coscob to be finished and all buying will be done at Coscob.

*Indiana, Columbia City. William Fisher has been elected president of the new Columbia Woolen Mills and James Adams has been elected treasurer. The company was incorporated a few weeks ago with authorized capital stock of $95,000 and will establish a four-set woolen mill here for making fancy cassimeres, giving employment to about 90 hands. Plans are now being made for the buildings and construction work will be started soon. No information can be secured as to when the officers expect to begin manufacturing. The plant will have four sets of cards, 2,560 mule spindles, 32 looms, complete raw stock dyeing and finishing departments, electric power equipment, etc. The product will be sold direct. Mr. Fisher has been superintendent of the South Bend (Ind.) Woolen Company and it was reported recently that he has been offered the position of vice-president of the South Bend concern.

Increased Efficiency

This Combination Drinking and Cooler Fountain was designed for one of the largest industrial plants

It is so durable, sanitary and efficient that it has immediately sprung into favor in many factories where a pure **bubbling and cool** drink is desired, as during the hottest days a cool, refreshing drink is supplied that results in **better feeling** and **better work.**

Rundle Spence Manufacturing Co.
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NEW ENGLAND BUTT COMPANY
304 PEARL STREET, PROVIDENCE, R. I.

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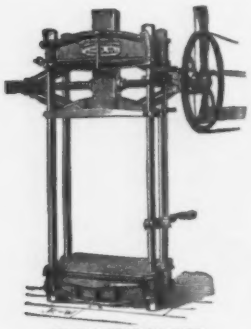
ALL STYLES AND KINDS FOR FLAT AND ROUND BRAIDS

SOLID SASH AND CURTAIN CORDS

SHOE AND CORSET LACES, BANDING

AND ALL BRAIDED FABRICS



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Any Size Any Power

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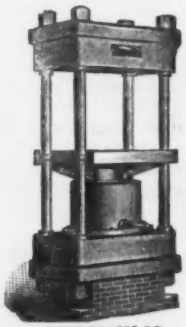

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THE CHAFFEE PATENT CLOTH BOARD,
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BOX SHOOKS and CLOTH BOARDS.

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Clean
LIGHT
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Thread and Silk SPOOLS of any description

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Manufacturers of all kinds of Saddles, Stirrups and Levers

WOOLEN MILL NEWS

Maine, Madison. Two additional stories are being built on the south end of the Indian Spring Mill of the American Woolen Company, giving an enlargement about 50 feet long. When completed new machinery is to be added and a rearrangement of the present equipment made. The dressing and spooling departments may be moved from the fourth floor to the second floor. Spinning equipment will be moved from the present location on the third floor to the new space and new mules will be added. The new equipment will include four sets of cards and ten looms which will give a total of 55 looms in this plant. It is thought that about ten weeks will be required to complete the building. Construction work is in charge of the Pitman Construction Company, of Lawrence, Mass.

Maine, Sanford. A force of men is engaged in laying the foundation for a new structure, 30 by 125 feet, to be erected at the northwest end of Mill No. 5 by the Sanford Mills. It is reported the new space is to be utilized for the drying of plush.

Massachusetts, Dalton. A small wooden addition is being built to the plant of Sawyer, Regan & Company. Recently this concern installed machinery in a building formerly used as a shoe factory and employment is being given in this annex to a number of men in addition to the regular force at the main mill.

*Massachusetts, Franklin. Machinery equipment is being installed in the addition to the Franklin Yarn Company's plant recently completed and includes one set of cards and two mules which will give an increase in the production of about ten per cent.

Massachusetts, Lowell. The Lyon Carpet Company is very busy and a new rug loom to weave rugs nine feet wide is being installed.

Massachusetts, Millbury. W. W. Windle Company, dealers in wool, noils, waste, etc., and scourers, carbonizers, and dyers, are having plans prepared for a new building, 198 feet long, 2 stories high, and construction work will be started in about three weeks.

*Massachusetts, Rochdale. Work on the new weave shed being built for E. G. Carlton & Sons is nearly finished. The building is 60 by 140 feet, of brick construction. A number of new looms will be installed.

*New Jersey, Passaic. The new mill to be built on Dayton Ave. for the Botany Worsted Mills will be 5 stories high, 194 by 134 feet, and is for the purpose of giving greater facilities for manufacturing lines of woolen and worsted dress goods, men's wear and yarns. The present equipment is 81,000 spindles and 26 looms. The company has just made known the gift of $12,000 to Passaic charities as a memorial of its twenty-five years of business here.

New York, Rochester. The Allen Woolen Mills have built an addition to their weave rooms and installed eight new looms, also a new dresser and a new spooler.

Who's Next On The List?

Allen Safety Set Screws Prevent Accidents

Many thousands are killed or maimed for life each year by projecting heads of set screws. You can prevent such accidents by using

ALLEN SAFETY SET SCREWS

Write for price list No. 6 and free samples for testing.

The Allen Manufacturing Company

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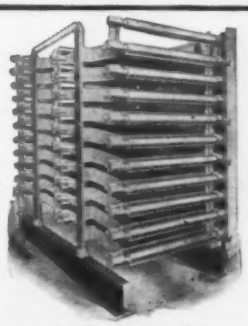

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and attachments will do this and more—they will enable you to figure correct wage basis. Used in many operations in textile manufacture. Let us send you a counter to cover your problem. Write today for prices and full particulars.

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Cutting Dies

— FOR —

"Straight Line" Cloth Analysis

And Determining Average Yarn Number of Fabrics

The "straight line" method of cloth analysis has been used by us for years. It is equally well adapted for cotton, woolen, worsted or linen fabrics.

The value of this method is conclusively demonstrated by the fact that the U. S. Treasury Department has recommended it to Customs Collectors and Appraisers as the simplest method of determining the average yarn number on which the tariff on cotton cloth is based.

The sample having an area of 1/300th square yard (4.32 square inches) can be cut in any form desired. The rectangular die shown in the illustration is what we have found convenient.

For the convenience of the trade we have arranged to supply dies like this at **$5.00** each, express paid. This includes instructions for use.

Having cut a sample of cloth with this die and weighed it on an ordinary grain scale, calculations to obtain the following information can be quickly made for cotton, woolen, worsted or linen:

Average number of yarn: woolen runs or cut; worsted, cotton or linen number.
Number of each kind of yarn.
Grains per square yard.
Ounces per running yard.
Ounces per square yard.
Running yards per pound.
Square yards per pound.
Number of yarn when spun.

This method of calculation is invaluable for analyzing fabrics that are to be duplicated or imitated.

The United States appraisers and custom house officers will use a system based on similar data, and these calculations will be in constant use by importers who wish the know what the duty will be on cotton cloths imported, and by domestic cotton manufacturers who wish to ascertain what the duty will be on competing foreign goods similar to goods of their own manufacture. We do not supply the grain scales, but these may be bought of any supply house.

Textile World Record, 144 Congress St., Boston, Mass.

—OR—

Alfred Suter, 200 Fifth Avenue, New York

WOOLEN MILL NEWS

New York, Skaneateles Falls. New boilers are to be put in by the Glenside Woolen Mills.

*Ohio, Cleveland. Construction contract has been awarded by the Cleveland Worsted Mills Company for the recently reported addition to the plant in Cleveland.

*Pennsylvania, Philadelphia. J. & J. Dobson, Inc., have approved the plans which it was recently noted were in preparation for a 3-story addition to the plant at Falls of Schuylkill. The additional space will enable the company to centralize under one roof its four wool combing departments. J. & J. Dobson also have placed the contract for fifty new plush looms which will be installed in lots of ten as fast as they can be delivered.

Pennsylvania, Philadelphia. George W. Lefferts & Co., Inc., succeeding the old firm of George W. Lefferts & Co., has been incorporated under the laws of the State of Delaware with a capital of $50,000. George W. Lefferts is president, Warren T. Rawson, vice-president and treasurer, and Walter Marshall, secretary. They have recently installed a 208 h. p. boiler and equipped a dye house for the purpose of dyeing woolen, worsted and merino knitting yarns, the dyeing department being under the direction of Harry Firthcliffe, formerly with the Continental Dye Works of this city. They are manufacturers of worsted yarns up to 32s for weaving and knitting, the plant containing 3,312 spindles operated on the Bradford system.

Pennsylvania, Philadelphia. Plans have been filed for the erection of a three-story brick building to be used as an addition to the Missouri Mills, occupied by George W. Davis, manufacturer of carpet yarns and railway waste yarns on 14 sets, located on Main St., Manayunk. The building will be 46 by 63 feet.

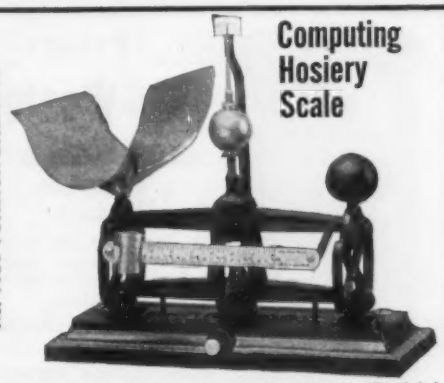
Pennsylvania, Philadelphia. Elliott & Olden, operating 40 narrow looms on men's wear and dress goods, have removed their plant from 2731-35 N. 6th St. to larger quarters at the N. E. corner of Howard and Lehigh Ave.

*Rhode Island, Hope Valley. The proposed changes and improvements in the boiler room of the Mystic Woolen Company reported in March are being made, old boilers being replaced with new ones.

Rhode Island, Lafayette. A number of new looms are being added to the Lafayette plant of the Rodman Mfg. Co., manufacturers of suitings, skirtings, etc.

Rhode Island, Providence. Fifty-one motors ranging from 3 h. p. to 20 h. p. capacity with accessories have been ordered by the Colored Worsted Mill from the General Electric Company. The Colored Worsted Mill manufactures worsted yarns, 2/20s to 2/60s on the Bradford system, operating three worsted cards, six combs and 4,600 spindles.

Rhode Island, Providence. Four new boilers are being installed in the power plant of the Riverside Mills of the American Woolen Company.



Computing Hosiery Scale

Place pair of hose in holder and slide weight on beam until scale balances. Slide weight indicates weight per pair and also weight per dozen pairs. If specified can equip the balance with beam to one pound for UNDERWEAR. Write for Textile Folder.

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Factory, Jersey City, N. J. Office, 92 Reade St., New York

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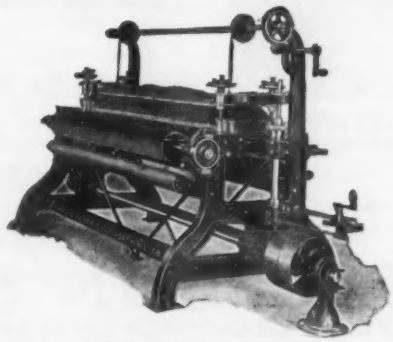

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MANUFACTURERS OF
Metallic Rolls

Especially adapted for Cotton Mills. 25 to 33 per cent more Production Guaranteed. Weight Reduced 33 to 50 per cent. No Leather Covering Bill.

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Seamless Hard Fibre
Roving Can

It does not have the riveted seam that strains and breaks the sliver

NO SEAMS OR RIVETS

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CYLINDER COMBER DUSTERS
OR HUMIDIFIER BRUSHES
will clean parts of comber machines that cannot be reached otherwise. Also used to get between the spools on a spinning frame.
Russian bristles twisted into the wire make it impossible for the bristles to come out.
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Don't move in the same old rut all your life without ever advancing to better work or better salary. You can secure in your own home, in your spare time, and without leaving your present work, the most powerful force for promotion in the world. Thousands have obtained increased earnings through the I. C. S. Write us a postal today, stating the position you would like to obtain. Advice of experts and booklet free.
International Correspondence Schools
Box 882, Scranton, Pa.

WOOLEN MILL NEWS

Rhode Island, Providence. New looms for the Continental Worsted Company have arrived and are being set up in the plant. Work on the new office building is progressing well and it is estimated that the structure will be completed in another month.

Rhode Island, Washington. James Morton, a manufacturer of shawls, Scottish plaids, and clan tartans, has installed two new looms.

Rhode Island, Woonsocket. Construction work has been started on a new dyehouse and wet finishing room for the Dunn Worsted Mills by the Eastern Construction Company. Also on an enlargement to the power house, which will include a new brick chimney. The addition to the dyehouse and wet finishing room will be 1 story high, 90 by 210 feet, of brick construction, with sawtooth roof. The addition to the power house will be 50 by 60 feet, of brick construction. New equipment for dyeing yarn and piece goods is to be installed on the completion of the additions about September.

*Wisconsin, Waupaca. New machinery equipment is being set up in the plant of the Waupaca Felting Mills for the manufacture of men's and boys' hats. This enlargement was noted recently.

.....

Mills Starting Up.

Michigan, Pickford. About the middle of June the Pickford Woolen Mills will resume manufacturing. The plant has been idle for several months and a reorganization has been effected by F. H. Taylor. The machinery is now being overhauled and a dyehouse will be added. When the mill starts up it will be under the management of W. D. Clarke, and Thomas G. Best will be business manager.

*Rhode Island, Carolina. Whiting Metcalf is quoted as stating that the Carolina Company will start up the old plant of the Carolina Mills Company in a short time. Mr. Metcalf with Fred M. Brown, and Patrick H. Quinn, recently organized the Carolina Company with capital stock of $30,000.

Rhode Island, Woonsocket. A new company is to be organized with capital stock of $100,000 by William Naismith, superintendent of the Scotia Worsted Mills, and William J. Barnett, buyer of woolens and worsteds for Sears, Roebuck & Co., Chicago, under the name of the Barnai Worsted Company. The Sayles & Prendergast Mill on South Main St., now occupied by the Paragon Worsted Co., of Providence, has been leased with the privilege of purchase. This plant contains 26 broad looms which will be operated on men's wear worsteds, using all kinds of worsted yarns from 2/20s to 2/50s. It cannot be stated definitely when the production of goods will begin but the plant will be started very soon. William J. Barnett is president, and William Naismith, treasurer. Messrs. Naismith and Barnett will retain their present connections and will engage a superintendent to manage the plant, although this position has not been filled as yet and a selling agent has not been decided upon.

PERSONALS.

J. W. Burnett has been appointed manager of the Brevard Cotton Mill, Brevard, N. C. He was formerly employed at the Chesnee Manufacturing Co., Chesnee, S. C.

A. W. Howell has been elected to the position of secretary-treasurer and agent of the Howell Manufacturing Co., Cherryville, N. C.

J. R. Mallory, for the past six years superintendent of the Irene Mills, Gaffney, S. C., has resigned his position with that company.

B. A. Holmes has been appointed superintendent of the Irene Mills, Gaffney, S. C.

H. C. Fleetman has been elected president of the Union-Buffalo Mills, Union, S. C.

W. G. Reynolds, superintendent of the Jennings Mill, Lumberton, N. C., has also been given charge of the Lumberton Cotton Mills, at the same place.

C. L. Snyder, for the past two years overseer of weaving, slashing, warping, twisting, dyeing and cloth room, has resigned his position with that company. He had been in the employ of this company for seventeen years.

F. D. Lockman has accepted the position of overseer of weaving at the Lockhart Mills, Lockhart, S. C.

George W. Green has accepted the position of overseer of spinning at the Woodside Mills, Greenville, S. C.

A. A. Brown has accepted the position of overseer of carding at the Clifton Manufacturing Co., Clifton, S. C.

J. C. Kennedy has accepted the position of overseer of carding at the Fountain Inn Manufacturing Co., Fountain, S. C.

J. T. Gaskin has accepted the position of overseer of weaving at the Hermitage Mill, Camden, S. C.

J. L. Phillips has accepted the position of overseer of weaving at the Fitzgerald Cotton Mills, Fitzgerald, Ga.

E. W. Netherland has succeeded O. A. Anderson as overseer of carding and spinning at the FortMill Manufacturing Co.'s Mill No. 1, Fort Mill, S. C.

F. W. Briggs, superintendent of the Pioneer Woolen Mill, Pittsfield, Me., has severed his connection with that company.

Ralph Greenwood, formerly assistant superintendent at the Lawrence Dye Works, Lawrence, Mass., has accepted a position in the shipping department at the Richardson, Foster Co., Central Falls, R. I.

John Hogan, who has been connected with the Singleton Silk Co., Paterson, N. J., for several years, has accepted a position with the Tynan Throwing Co., in the same city.

Peter Harvey, who recently resigned as superintendent of the Passaic Falls Throwing Co., Paterson, N. J., has accepted his former position with Inglis & Co., in the same city.

Steel Heddle Mfg. Co.

WORLD'S LEADING MANUFACTURERS OF

Flat Steel Heddles and Frames

Drop Wires and Heddles — Doup Heddles
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Specialists in Metal Punching

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READING, PA.

High Grade
Grey Iron Castings

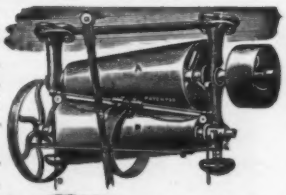
MAKING A SPECIALTY OF
SOFT IRON
guaranteed to be easily machined.

Castings Sand Blasted or Tumbled, as desired.

Write for particulars and estimates.

Variable Speed Countershafts

The Evans Friction Cone Pulleys will drive your machines at any desired speed from 1 to 6 by simply pulling a cord.
They are guaranteed to do your work.



We'll furnish them for either floor or hanging use.
Over Ten Thousand Sets in Operation in this Country and Europe.
Send for Catalogue.

EVANS FRICTION CONE COMPANY
G. Frank Evans. Newton Center, Mass.

PERSONALS.

Peter Bauer, who has been superintendent at the Paragon Silk Co. for three years, has resigned to accept a similar position with Fred McLain, who is starting a silk mill at Turner's Falls, Mass.

Joseph W. Booth, agent of the Atlantic Mills, Providence, R. I., has severed his connection with that company. He is succeeded by Everett E. Salisbury, who was head of the yarn sales department for the same company.

Sidney Brown of Dayville, Conn., has accepted the position of overseer of spinning at the Locustville Woolen Co., Hope Valley, R. I.

A. J. LaRoeque has accepted the position of overseer of twisting at the Jenckes Spinning Co., Pawtucket, R. I. He was formerly employed at the West Boylston Manufacturing Co., Easthampton, Mass.

Milton O. Dean, superintendent of the Dwight Manufacturing Co., Chicopee, Mass., has severed his connection with that company to succeed Walter S. Mitchell as superintendent of the Laconia division of the Pepperell Manufacturing Co., Biddeford, Me.

William H. Russell, assistant manager of departments 7, 8, 9 and 10 of the New England Cotton Yarn Co., New Bedford, Mass., has resigned his position with that company.

Fred Lorimer has accepted the position of overseer of dyeing at the Hartford Woolen Co., Hartford, Vt.

Robert J. Bailey, for fifteen years in charge of the cloth department at the Berkeley Co., Berkeley, R. I., has severed his connection with that company.

Guy Goodwin has been appointed overseer of spinning at the Stark Mills, Manchester, N. H. He was formerly second hand in the spinning department at this mill.

Peter Duxbury has accepted the position of overseer of spinning at the Dominion Textile Co., Ltd., Moncton, N. B., Canada.

C. G. Voss has been appointed superintendent of the Patterson Manufacturing Co., China Grove, N. C. He was formerly employed in a similar position at the No. 2 Deep River Mill, Randleman, N. C.

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Of Trade Mark Stamping For All Textiles

Send for samples and full information

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We have been supplying many of the largest Textile Manufacturing Plants with Second Growth **HICKORY PICKER STICKS** for twenty-five years. We are in a position to make you right prices, and to furnish you with just such quantities as you desire. Our Picker Sticks are made of the best hickory possible to obtain, and are thoroughly guaranteed. Sticks are made and fitted exactly as per sketch or sample, which should always be sent with first order.

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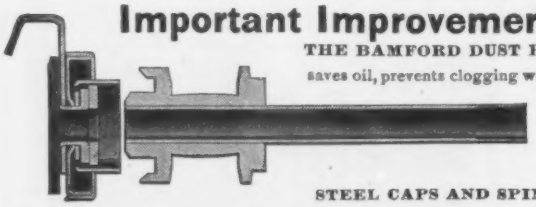
MAIN OFFICE AND FACTORY
BOSTON, MASS. ROCKFORD ILL GREENVILLE, S. C.

HAND KNOTTERS AND WARP TYING MACHINES

Important Improvement in Worsted Spinning.

THE BAMFORD DUST PROOF and SELF-LUBRICATING SPINDLE TUBE



saves oil, prevents clogging with dust and lint, thereby insuring longer life to the tubes, saves labor, maintains uniform speed, **and most important of all,** makes PERFECT YARN. Refer to largest worsted mills.

BAMFORD & SMITH, Providence, R. I.

ALSO MFRS. OF

STEEL CAPS AND SPINDLES. **Caps, Flyers, Tubes, etc., Repaired.**

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PHILADELPHIA

Makers of Soaps Especially Adapted for All Kinds of Textile Mfrs. Use. Send for Sample.

FACTS AND GOSSIP.

.....

Arkansas, Hot Springs. The Ouachita Power Company is interested in a plan to build a cotton mill. L. Storthz is president.

California, Los Angeles. The Pacific Cotton Company has been incorporated with capital stock of $50,000 to cultivate cotton and manufacture textiles. The incorporators are M. H. Wilson, T. W. McDevitt, E. F. and R. S. Parker, all of Los Angeles.

California, Marysville. The Marysville Woolen Mills Company, whose mill here has been shut down for several years, may resume manufacturing at an early date. In case the stockholders decide to start up the mill the machinery and buildings will be overhauled and changes and replacement will be made.

California, San Diego. Articles of incorporation have been filed by the Western Cotton Company with a capitalization of $200,000. The company owns 3,000 acres of land in Mexico. The present purpose is to grow cotton, but it is stated to be possible that a mill for cotton manufacturing will be built in San Diego after the completion of the San Diego and Arizona Railway.

*Canada, Ontario, Gravenhurst. The promoter of the new concern incorporated several weeks ago under the style of Flax Towels, Ltd., left Gravenhurst shortly after the incorporation of the company and nothing is known of his whereabouts.

Connecticut, Danielson. Some of the departments of the Danielson Cotton Company are operating evenings. Plain and fancy cotton goods and novelties are manufactured on 1,650 looms, cotton yarns being bought.

Connecticut, Elmville. The Elmville Weaving Company was sold on May 9 at public auction and the property was purchased by Providence interests which will operate the business under the management of P. E. Meissner, who was formerly connected with the plant as manager and secretary. The connection of H. B. Shaen has been severed. The new interests plan to develop the mill on a much larger scale.

Connecticut, Stafford. A. I. Mitchell and William Park have purchased the mill property of Frederick Faulkner. The plant was burned several months ago and has not been rebuilt. The purchasers have not yet announced their plans, but it is expected that the woolen mill will be rebuilt.

Connecticut, Stafford. Property has been purchased by the Rhode Island Worsted Company which it is understood will be used as a site for new houses for the use of the employes of the mill.

Connecticut, Taftville. A large steam pipe in No. 3 mill of the Ponemah Mills burst and escaping steam caused considerable damage to belts, machinery and stock.

SUBJECT: Rats and Mice June 1st, 1914

To Mill Owners and Superintendents:

DEAR SIRS:

In 1911 the Campbell Stores at Hoboken, New Jersey, were entirely cleared of rats after an application of 1000 tubes of DANYSZ VIRUS and since that time by the occasional use of the Virus they have kept their warehouses practically free from all rodents. In writing of the effects of the application the treasurer of the Campbell Stores said, in part, "We consider the results exceptionally gratifying considering the fact that we are located on docks occupied very largely by steamers unloading from some of the worst rat-infested ports in the world."

What was done by the Campbell Stores people can be done by you. You do not need to suffer from rat-damage if you will use DANYSZ VIRUS. Write us today for information.

(Signed) DANYSZ VIRUS LIMITED, Dept. 4,
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If You Could Reduce the Power Required to Drive Your Pickers

Without Decreasing the Amount of Stock Handled per 10-hour Day—Wouldn't It Be Worth While?

TRADE MARK REGISTERED IN
NON-FLUID OIL
UNITED STATES PATENT OFFICE

will save much of the power required to drive your pickers, and actually render them more efficient. Unlike ordinary oil, Non-Fluid Oil does not work out of bearings and permit them to run hot and thus increase wear and power consumption, but clings to the bearing surface until entirely consumed. Unlike ordinary grease, Non-Fluid Oil does not require bearings to run warm before beginning to lubricate and when shaft is idle will not gum or corrode.

The use of Non-Fluid Oil reduces the percentage of "mill seconds" because it does not drip or spatter.

There are many other reasons why you should use Non-Fluid Oil. Write for samples and discover them.

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1914

Official American Textile Directory

Compiled by the Textile World Record

Here's a Hint of What It Contains

Over 15,000 Different Concerns Listed

A Complete Directory of Mills including Cotton, Woolen, Knitting, Silk, Flax and Jute Mills of the United States and Canada, together with the Dyeing and Finishing Works, Bleacheries, Print Works, and other Textile Establishments, about 7000 in all.

Full information is given about each mill in almost every instance, viz.: the name of the company or firm, names of officers, agent, superintendent, the character of goods made, machinery equipment, i. e., the number of sets of cards (or combs), the number of spindles, number of looms; whether the mill uses steam or water power, whether there is a dye house or not, the names of the selling agents or if the mill sells direct, and in many instances the name of the man is given who buys the raw material and supplies. In this section of the Directory all the mills in one place are arranged under the head of that town, but so designated by boldface letters that the kind of mill is determined at a glance, so that a person looking, for instance, only for woolen mills can pick them out instantly. This system of arrangement is conceded to be the most convenient of any as it groups all the mills in one town together and is self-indexing, while at the same time those interested in a particular class of mills, such as cotton, silk, or knit, can find them as easily as if they were classified separately.

The Map Feature was originated by the Textile World in 1894, and is copyrighted. There are 19 of these textile maps, which show only the cities and towns where there are textile establishments. 19 maps.

An Alphabetical Index to the textile establishments in the United States and Canada, about 7000.

Mills with Worsted Machinery. A separate list is compiled of mills with worsted machinery for the convenience of those dealing exclusively with that branch.

The Yarn Trade Index. In this department are classified lists of manufacturers of different kinds of yarn who spin for the market. It gives the size of yarn spun and the form in which the yarn is put up, together with the selling agents of the mills, or if sell direct. About 900 names.

Classified List of Manufacturers This is a new section in which all the manufacturers of textile fabrics are listed under suitable headings showing the classes of goods made.

Commission and Order Section. In this department are classified lists of establishments doing dyeing, bleaching, printing, finishing, and mercerizing on order, sub-divided according to the class of work done. About 500 names.

Raw Material Section. In this department are complete lists of dealers and brokers in wool, cotton, shoddy, waste and extracts, and wholesale rag dealers. About 2500 names.

Selling Agents and Dry Goods Commission Houses in the principal cities of the United States, giving the character of goods handled. About 2300 names.

Textile Associations. Owing to the growing number of inquiries for information of the various associations a list of all the textile associations in the United States and Canada has been included in this year's Directory. The names of associations, officers and addresses are given.

Machinery and Supply Section. This contains a carefully classified index of builders of textile machinery and dealers in mill supplies. About 800 names and 500 headings.

Office Edition $3.00 **Travellers' Edition $2.00**

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New England and Canada; Middle Atlantic States; Southern and Western States, $3.00 for set of three

Lord & Nagle Company

Textile Publishers, 144 Congress St., Boston

NEW YORK PHILADELPHIA CHICAGO

MISCELLANEOUS.

*Canada, Ontario, Brantford. It is reported that the Niagara Silk Mills, of North Tonawanda, N. Y., will establish the projected Canadian branch here on condition that a suitable building can be rented. The Brantford Industrial Realty Company will provide a building if the city will guarantee bonds to the extent of 75 per cent. of the value of the building. It was noted in March that a 3-story mill, 165 by 52 feet, would probably be built and that Lloyd D. Barber, an architect of Brantford, was preparing the plans.

*Kentucky, Covington. It is reported the R. T. Pearce Company will establish a mill for manufacturing narrow tapes and has in course of construction a building to be equipped for this purpose. Details of equipment have not been fully decided upon. The incorporation of this company with capital stock of $5,000 was reported in March. The men interested are Richard T. and William N. Pearce, and others.

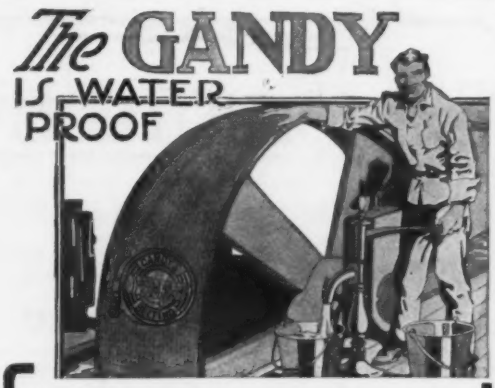
Massachusetts, Holliston. The Burton Company has been organized with authorized capital stock of $1,000,000 to deal in yarns, twines and cloth. The incorporators are George D. Burton, 185 Summer St., Boston, president; Edgar N. Hunt, treasurer of the Roxbury Carpet Co., 93 Summer St., Boston, treasurer; Edward D. Morgan, clerk; Charles A. Purdy, Cecil M. Caverly, William H. Taylor and Franklin P. Simonds. The new corporation succeeds the Electro-Chemical Fibre Company at Holliston, which has been conducted for the past year or two in the manufacture of flax yarns, twine and fiber stock. It is proposed to add four sets of additional machinery and largely increase the output.

Massachusetts, Taunton. Work has been started on an addition to the plant of the Taunton Oil Cloth Company which adjoins the present plant. The addition will be of brick construction with a concrete foundation, 235 by 100 feet. The output is to be considerably increased.

New Hampshire, Concord. The New England Cable Company, a new concern which began manufacturing a few months ago in Lowell, has moved its plant to a building on Bridge St. in Concord, where quarters are leased, and manufacturing will be started in a new location about May 15. The concern makes insulated wire and cables and gives employment to 50 hands. Electric power is used. The capital stock is $40,000. D. J. MacDougall is president; S. Dunsford, treasurer and buyer; and H. B. Dunsford, superintendent.

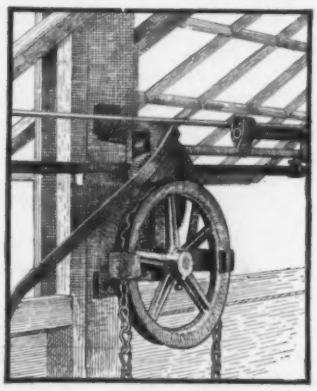
*New Jersey, Paterson. Equipment is being installed in the addition to the plant of the Oriental Silk Printing Company for dyeing silk piece goods. The enlargement adds one floor, 40 by 100 feet, to the facilities of the company.

New Jersey, Paterson. The Lyons Piece Dye Works will build a $15,000 addition to be 1 story high, 60 by 227 feet, of concrete and steel. A business of dyeing, printing and finishing is carried on. Dr. Cadgene is president, treasurer and manager.



EVERY Gandy Belt is saturated with a special compound of oils that renders it impervious to water, heat or steam.
One of our customers writes us that during the night the water in their wheel pit often rises enough to cover the lower portion of their 16-inch Gandy Belt, but that the belt continues unaffected by these adverse conditions, though it has been transmitting 70 H. P. for several years.
Gandy Belting costs but one-third as much as leather, much less than rubber, but it does the work equally well, or better, especially under unfavorable conditions.
If you're not familiar with Gandy service, send today for free sample and testimony of a few of the thousands of enthusiastic Gandy users.

THE CANDY BELTING CO.
747 W. PRATT ST., BALTIMORE, MD.
NEW YORK OFFICE, 30 WARREN ST.



The vitality of Dyers dies out at the tubs during the sultry summer days. Let out the heat, let in the cool air with a "STRAIGHT PUSH" Sash Operator. The "Straight Push" is an airy agent of comfort. It does its work free and works freely. It doesn't stick, falter or stop. The spur gear mechanism insures all your sash working all the time. The air gets in and gets out much or little just as you need it.

Our booklet explains the all-along-the-line workability of the "Straight Push." It is yours for asking

The G. DROUVÉ CO., Bridgeport, Conn.

PROTECTIVE MARKS

In as much as it has become such a common practice to imitate or counterfeit every article of merit, users of

Wyandotte Textile Soda

and

Wyandotte Concentrated Ash

should become familiar with the following special marks which are always placed upon every package containing these materials.

Every barrel of Wyandotte Textile Soda

Has Yellow Hoops both top and bottom.

Has the trade mark Indian with drawn bow and arrow on the label.

Has a card within the barrel on which is printed this same trade mark.

Every barrel of Wyandotte Concentrated Ash

Has blue hoops both top and bottom.

Has plainly stenciled on the top Wyandotte Concentrated Ash manufactured by the J. B. Ford Co., Wyandotte, Mich.

Look for these distinctive marks on every shipment of these materials which you receive, and if you do not find them refuse the order.

Order from your supply house.

The J. B. Ford Co., Sole Mfrs., Wyandotte, Mich.

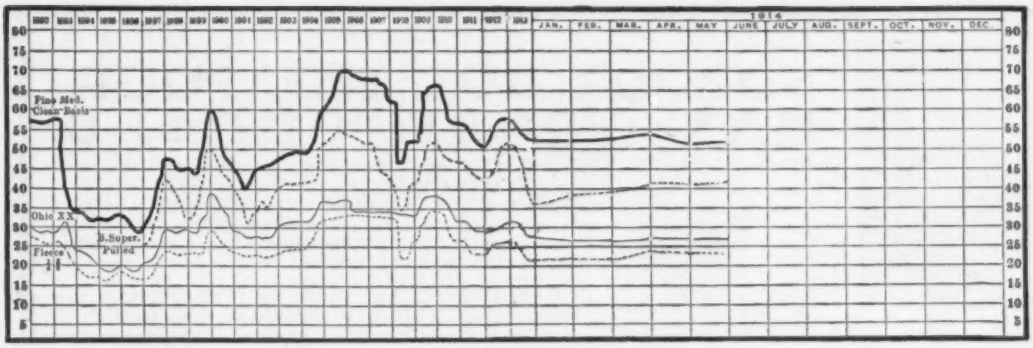


CHART SHOWING RANGES IN THE PRICE OF WOOL TO DATE.

THE WOOL MARKET

There is no indication that the wool market is to suffer any reaction so far as prices are concerned, although buyers are offering a firmer resistance to any further advance. Spinners and topmakers, both in this country and abroad, are complaining bitterly on the ground that the high cost of raw material has deprived them of a safe margin in manufacturing, but when it comes to doing business they are forced to pay the price asked or go without wool with which to make goods. This condition is worldwide and due to a material shortage in the supply as compared with the demand for wool. The strength of foreign markets extends to noils and the better grades of waste and shoddy, all this showing the world hunger for the wool fiber. A Boston firm dealing in wool, tops and noils recently had this brought home to them in a striking manner. They had sent a buyer to Bradford expecting to get a stock of noils that could be sold in the United States at a handsome profit. After the buyer had canvassed the Bradford market for a week he wired his Boston house an offer for their Boston stock of noils that was materially above the American prices. The result was that the firm exported noils, instead of importing them.

WOOLEN MILL NEWS

Enlargements and Improvements.

*Canada, Ontario, Lindsay. Details of the increase to be made by the Horn Bros. Woolen Co., Ltd., are being worked out. It was noted in a previous report that the property formerly used by a brewery has been taken over and will be occupied by the concern.

*Connecticut, Coscob. The Mianus Mfg. Company has purchased all the machinery, stock and fixtures of the Derby Fur Fabric Mfg. Co. and the Derby Worsted Company, Derby, Conn. All of the finishing machinery will be removed to the plant at Coscob. The carding, spinning and weaving machinery, including 6 sets of cards, and 20 looms, will be moved to a mill in Norwalk, Conn., formerly occupied as a branch plant by the Salt's Textile Mfg. Company, where they will produce cloth suitable for imitation fur fabrics, plushes and carriage and automobile robes, all goods being finished at Coscob. All buying will also be done at Coscob. Machinery is now being removed from Derby.

*Connecticut, Killingly. One new boiler is to be added to the battery of three boilers now in use at the Assawaga Company when the new construction work at the boiler house is completed. The work is well under way.

Connecticut, Yantic. A number of looms have been received by the Ardmore Woolen Mills Company, and will be installed and started up at once. This concern took over the Yantic Woolen Mill.

LOGWOOD BLACKS

WEARING QUALITIES

The resistance to wear and tear of goods interests primarily the consumer.
The pleasing of the consumer interests primarily the manufacturer.
Logwood Black dyed goods excel in resistance to wear and tear.

AMERICAN DYEWOOD COMPANY

NEW YORK PHILADELPHIA BOSTON HAMILTON, ONT.

Direct Acting Steam Hydraulic Elevator

Double Geared Steam Hydraulic Elevator

NOBODY BUT THE POOR HAS TO BE CURSED

BY BUM ELEVATORS

Some men have to wear 98 cent hats and $4.98 suits of clothes. But manufacturers with a little money to the good or with a little credit at the bank can have the finest elevators in the whole world. The Ridgway Steam Hydraulic Elevator is the only kind of Elevator we make for

Standard Oil Co.	Joseph Benn & Son	F. A. Strauss & Co.
R. J. Reynolds Tobacco Co.	Onyx-Hosiery Folk	Princeton Worsted Mills
Continental Gin Co.	General Electric Co.	Lowell Machine Shops
International Harv. Co.	Proctor & Gamble Co.	Remington Typewriter Co.
John Wanamaker	Sherwin-Williams & Co.	Ivins, Dietz & Metzyar
Eavenson & Levering	Cluett, Peabody & Co.	Crane & Co., (Dalton)
Shackamaxon Worsted Mills	Summit Thread Co.	Chinese Government
Geva Mills	Somerville Mfg. Co.	Ontario Dyeing Co.

And hundreds and hundreds more textile and all sorts of mills.

The Ridgway Steam Hydraulic Elevators are the cheapest elevators in the world because ***they cost nothing to run, are fool proof, require no repairs, always go*** — go when the engine shuts down. NO PAY UNTIL THEY "MAKE GOOD." This is why all the up-to-date fellows

"Hook 'er to the Biler"

CRAIG RIDGWAY & SON CO.

Coatesville, Pa.

Elevator Makers to Folks Who Know

ALFRED SUTER TEXTILE ENGINEER

200 Fifth Avenue • New York

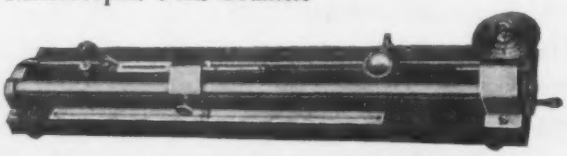
Importer of all the latest types of

Testing Instruments
Conditioning Ovens
Yarn Numbering Scales
Yarn Reels

Universal Cloth and Yarn Analyzing Set

Combined Yarn and Cloth Strength Tester, adapted for hand, motor drive, or oil plunger.

Microscopes. Pick Counters



New 20" Twist Tester, with take-up registering device and magnifying glass for spinning twist. Also has even tension attachment.

Combers Percentage Scale

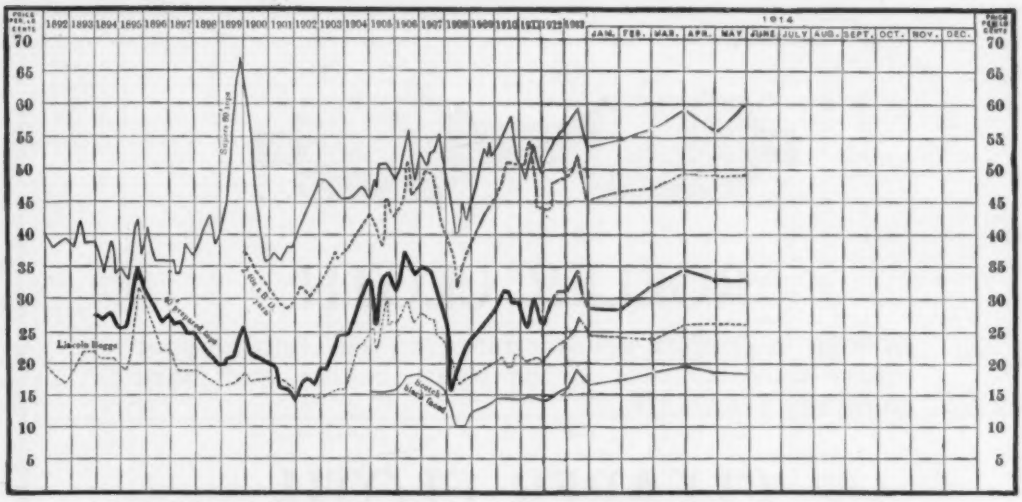


CHART SHOWING COURSE OF PRICES FOR WOOL, TOPS, AND WORSTED YARN AT BRADFORD, ENGLAND

THE BRADFORD MARKET

Bradford, May 25, 1914.

The position is as anomalous as before. Wool is at higher values than is warranted by the state of trade and yet all the wool coming forward is promptly sold. Transactions in tops are slow but firm and a number of spinners are in want of orders. It is an accepted saying that money never was made in Bradford when 64s tops were over half-a-crown (60 cents) and their present quotation of 62 cents is a much higher basis than manufacturers had calculated upon. Makers of fine worsted cloth are 3 to 4 cents out in the cost of yarn and those spinners who sold forward in December at 8 cents less than the price of today have had to pay dearly for their mistake. Dealings in fine tops and yarn will be restricted to the barest minimum while the present price holds. American purchases out of the small available quantity of merino cannot be prevented, but they are grudged.

The finer crossbred show more strength than the medium and coarse qualities, but little is heard of new contracts for yarn. Crossbred spinners find working unprofitable. Machinery is beginning to fall idle in several departments. Looms have been rather better employed by orders for quick delivery for the summer season. The worsted manufacturers who have principally benefited from American orders for fabrics are those whose cloths have been well known in the United States for years, and the Huddersfield makers of fancies. Demand has not yet reached the unknown makes of plains and semi-plains.

COTTON MILL NEWS

New Mills.

*North Carolina, Belmont. Preliminary work toward the construction of a mill for the National Yarn Mills, Inc., will be started before the end of the month and the plant will be in operation about May, 1915. The equipment will consist of about 10,000 spindles, the number not having been definitely decide upon, for making combed cotton yarns of about 80s. Employment will be given to about 200 hands. The incorporation of this company with capital stock of $200,000 was recently noted. A. C. Lineberger is president and R. L. Stowe is treasurer. Messrs. Lineberger and Stowe are interested in the three cotton mills now running in Belmont.

*North Carolina, Marion. The new Clinchfield Mfg. Company has awarded construction contracts to T. C. Thompson & Bros., Charlotte, for a main mill building, 3 stories high, 350 by 132 feet, with separate boiler and engine room, 100 by 50 feet. The rope drive will be used. Contracts for engine, boilers, pumps and for carding and spinning equipment have been placed. This company was organized a few weeks ago with capital stock of $500,000 and will have equipment of 25,000 ring spindles and 600 automatic looms to manufacture print cloths which will be sold through Baldwin & Leslie, N. Y. D. D. Little, Spartanburg, S. C., is president and treasurer, and H. F. Little, superintendent.

*South Carolina, Landrum. Work was started May 20 on the construction of the mill for the Shamrock Damask Mills Company and it is expected manufacturing will be started about August 1. As noted in previous reports, this company has capital stock of $20,000 and will operate 20 looms on table damask, using steam power. H. L. Spears is president and J. R. Mallory, formerly superintendent of the Irene Mills of Gaffney, S. C., is treasurer, agent and buyer.

ROLLER CLOTH

In order to produce good cotton yarn the cloth on your rollers must afford just the right cushion and have uniformly even surface

CLEARER CLOTH

must have thick, strong nap that does not pull out and is of uniform length so that it will clear the rolls of *all* short fibres

SLASHER CLOTH

to give you good service must be porous and have sufficient cushion to thoroughly force the sizing into the yarn. To be economical it must have exceptional wearing qualities

The only way to be sure of getting Roller, Clearer and Slasher Cloths to meet your exact needs is to order those that bear the trade-mark of the oldest, largest, and most progressive felt manufacturer in the country

American Felt Company

TRADE MARK

BOSTON, 103 Bedford Street
NEW YORK, 114 E. 13th Street

If your supply house is out of stock, we will ship to you direct. Make sure your roller coverer uses our brand. The trade-mark is your guarantee

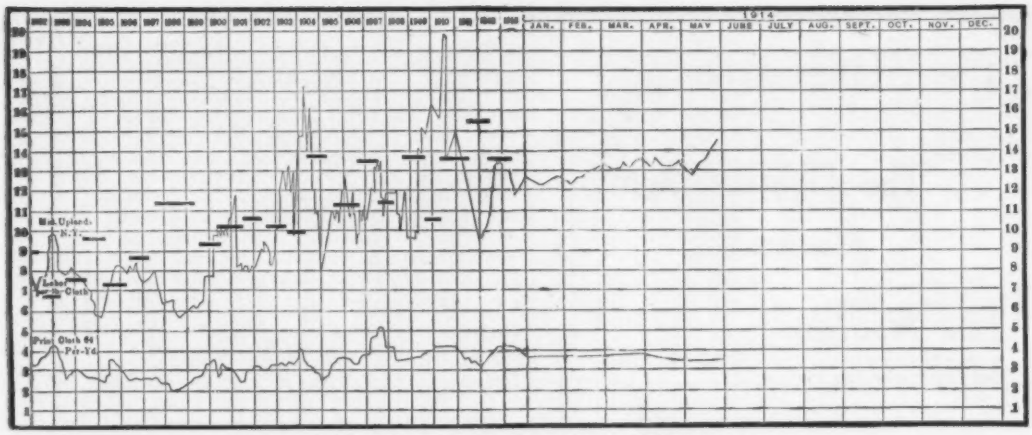


CHART SHOWING RANGE IN THE PRICE OF COTTON TO DATE

The short, heavy, horizontal lines indicate the size of the cotton crops in millions of bales.

THE COTTON MARKET

An improvement in the demand for goods combined with reports of unfavorable conditions for the new crop has supplied the basis for a pronounced advance in prices, and at this writing there is every indication that the advance will be maintained. How far it will be carried depends on a number of factors, chief of which is the development of the new crop. The movement into sight from Sept. 1 to May 29 is reported by the "Chronicle" as follows:

Year	Bales
1913-14, May 29	13,682,934
1912-13, May 30	12,907,458
1911-12, May 31	14,841,696
1910-11, June 2	11,296,392
1909-10, June 3	9,914,763
1908-09, June 4	12,909,364

The same authority estimates the world's visible stock of cotton on May 29 at 4,687,100 bales, as compared with 4,205,202 bales on the corresponding date in 1913, 4,150,044 bales in 1912 and 3,016,018 bales in 1911. The Egyptian market is strong, following being quotations on leading grades by Richards, Atkinson & Haserick:

S. E. P.	22
O. R. D.	21¼
T. I. Z.	20¼
A. D. E.	19⅝
M. A. H.	17¾

COTTON MILL NEWS

Enlargements and Improvements.

Alabama, Huntsville. Contract has been awarded to Baxter Bros. by the Lowe Mfg. Company for the construction of an addition to the engine room. The estimated cost is $7,000.

Georgia, Columbus. A contract has been made by the Swift Spinning Mills with a local power company for electric current to operate the entire plant. Recently a contract was awarded for an addition which will be completed and ready for operation soon after August 1. 13,000 spindles are to be added to the equipment, giving double the present production. In connection with these increases the capital stock of the concern was increased from $180,000 to $300,000.

Georgia, Hartwell. According to report the Hartwell Mills will add to its capacity by increasing the machinery equipment. Sheetings are manufactured on 8,000 spindles and 200 looms.

Massachusetts, Taunton. The Canoe River branch of the New England Cotton Yarn Company is shut down. Some of the old machinery is being taken out and replaced by new equipment.

*Massachusetts, Webster. The new weave shed for S. Slater & Sons, Inc., for which plans were prepared by Charles T. Main, mill architect and engineer of Boston, will be known as Mill No. 7. It will be 174 by 293 feet, 1 story and basement, with saw-tooth roof. There are under construction for S. Slater & Sons, Inc., from the plans of Mr. Main, two other buildings, comprising a woolen mill and a cotton spinning mill. Particulars of these buildings have been given previously.

WEIMAR BROS. MANUFACTURERS OF Cotton Mercerized Tapes
SPOOL TAPES, BINDINGS AND NARROW FABRICS FOR UNDERWEAR AND OTHER TRADES
Phone Connections. Works, 2046-48 Amber Street, PHILADELPHIA, PA.

"The Whitest White
makes
The Lightest Light"

The Right Mill White

will produce a surface on the walls and ceilings of your mill that will be glossy and smooth—like tile—a coating that will not crack and can be washed down with a hose.

Glidden's
DAY LITE
Mill White

is the right mill white and the economical mill white to apply. It produces greater illumination at a reduced cost. Write us for full information.

The Glidden Varnish Co.
Cleveland, Ohio

Factories
Cleveland, Ohio Toronto, Canada

Branch Warehouses
New York Chicago London

COTTON MILL NEWS

*Louisiana, New Orleans. All departments of the Maginnis Cotton Mills are being overhauled and wherever necessary new machinery is to be installed. A complete new equipment of automatic looms will replace old equipment and a humidifying and air conditioning system is being put in. It is expected manufacturing will be started in about six weeks. The product will be sheetings, duck, drills, osnaburgs, cement bags, both plain and printed. Louis Kohlmann is to be general manager, and W. Loeber Landau, superintendent. Messrs. Kohlmann and Landau will both attend to the buying.

Maine, Lewiston. An order has been placed by the Androscoggin Mills for a new 1,000 h. p. water wheel unit. The new equipment is expected to be in operation early in August.

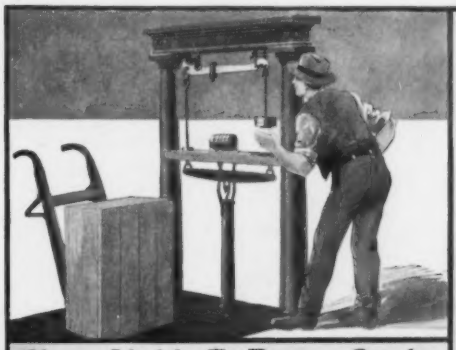
Massachusetts, Fisherville. Sixty new fancy looms are being added to the weaving department of the Fisher Mfg. Company. Several installments of looms have been received and set up in the past few months and a new 4-story addition has been built for the carding and spinning departments.

*Massachusetts. Millbury. Construction contract has been awarded by the Cordis Mill for the extensive additions recently outlined. The stockholders have voted to increase the capital stock from $120,000 to $300,000 and to build a 3-story addition, 290 feet long by 82 feet wide, and to install new equipment which will more than double the output of the plant. Ticking is manufactured. Charles W. Praray, of New Bedford, is the architect and engineer. Fred W. Moore is agent and buyer.

Massachusetts, New Bedford. An addition is to be built to the weave shed of the Nashawena Mills which will be 2 stories high, 30 by 78 feet, of brick construction, to be used for a conditioning room. C. R. Makepeace & Company are the architects and the B. F. Smith Construction Company will do the construction work.

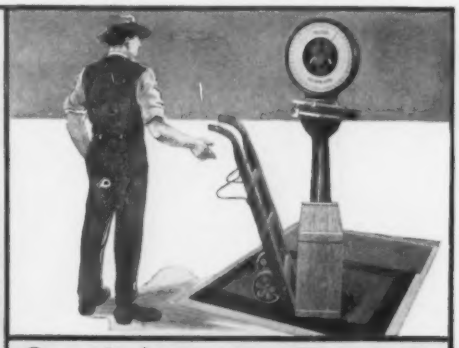
New Hampshire, Claremont. No. 3 Mill of the Monadnock Mills is to be enlarged by the erection of another story extending over the entire structure. This new story will afford sufficient space for 69 broad quilt looms which, with a number of new looms to be installed in No. 4 Mill will make a total increase of about 100 looms. It is stated this will give an increase of about twenty-five per cent. in the output of satin and Marseilles quilts manufactured by this concern. Material for the addition is arriving and construction work will be started immediately with the expectation that the enlargement will be finished by the middle of the summer. There will be no interference with the operation of the No. 3 Mill. Construction work will be done by the company's own force. George A. Tenney, Claremont, is treasurer and buyer; and A. M. Nichols is superintendent.

New Hampshire, Nashua. The addition to the plant of the Nashua Mfg. Company, which has been under construction for several months, is partially equipped. The new mill is known as No. 7 Mill.



Slow-Liable To Error-Costly

TIME AND LABOR SAVING



Speed-Accuracy-Economy

Cut Weighing Costs with the Toledo Scale

Compare These Two Methods:

The man operating an old-fashioned, beam scale with the **Toledo** plan of weighing. See in the left photo how speed and accuracy are sacrificed—how the weighmaster has to fumble with weights—tap the counterpoise back and forth, wait for the beam to balance, and in the end, get only an approximated result. Notice the difference in the **Toledo** method—standing *clear* of the scale the weigher, by a mere sight transaction, gets the *exact weight instantly*, without the time-consuming mental calculations, useless motions and hand operations, necessary with other methods. *Now* you can see why the **Toledo** is *guaranteed* to cut weighing costs from *10% to 50%*.

The Saving is Proved:

And these savings are not mere possibilities, but realities—*facts daily proven by each of the 125,000* **Toledo** *Scales now in use, under every conceivable condition and in all businesses.* They are used by packers—textile mills—automobile manufacturers — wholesale grocers—paper mills—foundries—machine shops, etc., etc., and in every case, give both the manufacturer and jobber a square deal by eliminating the fallible human factor and substituting *errorless machine accuracy.*

Automatic Toledo Scale *Springless*

A Distinctive Feature—The Portable Scale Needs No Levelling

On jobs impossible to take to a dormant scale, the **Toledo** Portable, *without levelling or balancing is instantly ready for use.* This floating compensating pendulum counter-balancing mechanism is *found in no other scale made*, and the increased accuracy and the saving in time it creates, is *alone* reason enough for specifying "**Toledos.**"

TEN DAYS FREE TRIAL—IF YOU USE THIS COUPON

There are other big features of Toledo Heavy Capacity Automatic Scales which will interest you. Let us show you why over One Hundred and twenty-five Thousand users have found the Toledo Principle most satisfactory and tell you what many of them say regarding its advantages over other methods of weighing.

Both our Portable and Dormant scales are made in weighing capacities from 250 to 1500 lbs. Small counter scales from 20 ounces to 115 lbs. We furnish scales equipped with metric system charts.

Mail us this coupon for our ten day free trial offer and catalog giving complete information.

TOLEDO SCALE COMPANY, TOLEDO, OHIO
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Canadian Factory: Windsor, Ont. **Offices in all large cities**

TOLEDO SCALE COMPANY
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Please send your Ten Day Free Trial Offer and Latest Catalog.

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MERCERIZED YARNS

DYERS, BLEACHERS, GASSERS

Dyers of Colors Fast to

SUN AND BLEACHING

Aberfoyle

Manufacturing Company

CHESTER, PA.

310 Lafayette Building
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746 Insurance Exchange
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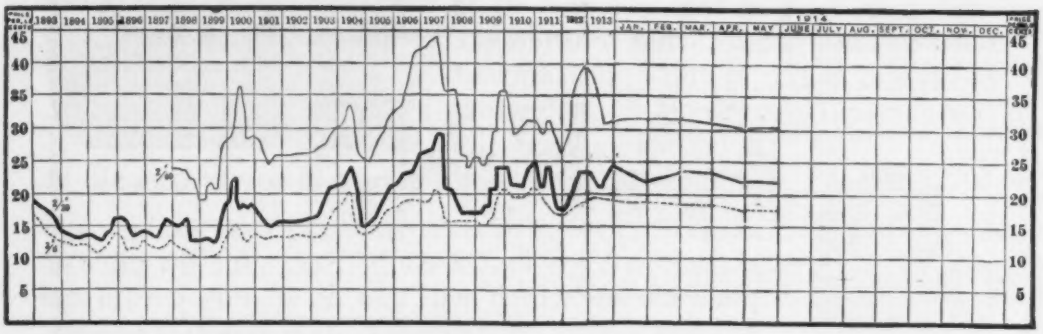
Yarn Department



GRAPHIC CHART SHOWING RANGE IN THE PRICE OF COTTON YARN TO DATE

THE COTTON YARN MARKET

There is a little better feeling prevailing in the trade at this time. The demand for yarns during the month of May was rather small and business at a standstill. Some dealers in their efforts to force business named extremely low prices which unquestionably meant a serious loss to them, but even these low prices did little towards increasing the demand. Spinners have curtailed their production about 40 per cent. While the output is slightly larger than the present consumption it has done much to relieve the situation. Raw cotton continues very high and spinners are not entertaining prices near Philadelphia quotations. The majority of the manufacturers are receiving business from hand to mouth and buying their yarn supplies in the same manner.

We find that the dress goods manufacturers, in some instances, are busy on certain novelties which have been in demand, but staple styles are not selling at all. Some of the manufacturers of men's wear are running fairly well, but those manufacturing the low priced lines are having difficulty in keeping their looms in operation. Turkish towels continue in good demand, but terry cloths are very slow. Tapes and narrow fabrics are also in fair demand while upholstery fabrics are extremely dull. Carpet manufacturers are just showing their lines and some of them feel that the outlook is fair.

The prices quoted today are said to be extremely low. There is but little doubt but that we can look to their going no higher should even a normal demand develop.

Eastern Cops

6s	19¼
8s	19¼
10s	21¾
14s	22¾
16s	23½
18s	23¾
20s	24¼
22s	24¾
24s	25¼
26s	25¾
30s	26¾
34s	29
36s	30
40s	29½

On cones, ¾c. more up to 14s; 1c. more from 15s to 22s; 1½c. from 23s to 35s, and 2c. above that.

Eastern Two-Ply Skeins, Carded Peeler

12s	23
14s	23½
18s	24½
20s	25
24s	26½
26s	27½
30s	28½
36s	36
40s	38
45s	42
50s	45
55s	46½
60s	51½

Eastern Two-Ply Warps, Carded Peeler

2/30s	29
2/36s	36
2/40s	38
2/45s	42
2/50s	45
2/60s	53

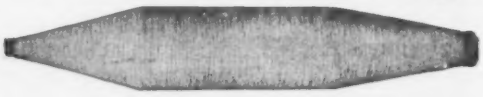
A Buttonhole
Made with our SPUN SILK

is far more durable than if it was made with cotton. Think what a difference too it will make in the appearance of the garment. A SPUN SILK buttonhole will keep its shape better and the difference in cost is very slight.

For Hosiery Manufacturers we make a special extra high lustre SPUN SILK put up on half-pound cones which will run as free as cotton and will not wear out the needles. *All sizes shipped promptly.*

Nonotuck Silk Company

Established 1838
High Grade Spun Silk
Florence, Mass.



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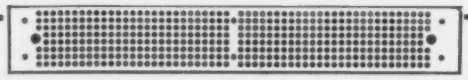

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7s and coarser	20½
8s and 9s	20½
10s	20½-21
12s	21-21½
14s	22
16s	22½
18s	23
20s	23½
22s	24
24s	24½
26s	25
30s	26
40s	33
50s	39

Southern high grade mule yarns:—

Cones

10s	22½
12s	23
14s	23½
16s	24-24½
18s	25
20s and 22s	25½-26
24s	26½

Southern frame yarn, lower grades:—

6s and 8s	19½
10s	20

Eastern cones (high grade quality):—

10s	23½
12s	24
14s	24½
16s	25¼
18s	25¾
20s and 22s	26¼-26¾

Skein yarn (mostly Southern):—

4s and 8s soft	19½
10s and 12s	20-20½
14s and 20s	21-22½
22s	23
10/2	20
16/2	21
20/2	22½
30/2	25½
40/2	31
8/2	20
7/6	20

Southern warps:—

10/1	20
14/1	21
16/1	21½
20/1	22
22/1	22½
26/1	23½
30/1	25½
8/2	21
12/2	21½
14/2	21½
16/2	22
20/2	22½
26/2	24
30/2	25½
40/2	31
50/2	38

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CARDED and COMBED, in Nos. 10 to 120, from PEELER EGYPTIAN and SEA ISLAND COTTONS
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Manufacturers of

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Single, Double, Three-Ply, etc.
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May we send samples? 15 colors and white

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And Linen Yarns and Threads for every purpose

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THE LINEN YARN MARKET

There has been no alteration in prices since our last report, but the tone of the market keeps on improving. Although the consumption is limited it more than keeps pace with the restricted production. The demand for yarns seem to be somewhat better, but there has been no great volume of business done from any one particular standpoint. Spinners seem to be very optimistic, although it is hard to see why they should be so when they have so many idle spindles. The prevalent opinion is that prices have not reached their lowest point. Buyers can secure practically their own terms. If the order is sufficiently large inducements are offered by almost any of the spinners, but the tendency is as far as possible to maintain prices owing to the continued high price of raw material.

("A" Quality)

35s Lea on cones	83
50s Lea on cones	88
60s Lea on cones	93
80s Lea on cones	98
90s Lea on cones	1.07
100s Lea on cones	1.10
110s Lea on cones	1.25
120s Lea on cones	1.45

COTTON MILL NEWS

*North Carolina, Greensboro. Preliminary work has been started toward the construction of the new buildings for the Revolution Cotton Mills, announced late in 1913, and construction contracts will soon be awarded. It is expected the enlargements will be completed and fully equipped during the latter part of 1915. The additions include a 2-story mill, 500 by 130 feet, for carding and spinning; a 1-story mill, 447 by 130 feet, for weaving; and a 3-story mill, 303 by 130 feet, for bleaching, dyeing, finishing and shipping. Other buildings for power department, to develop 3,000 h. p., and for storage are included in the plan. The new equipment will include 130 cards, 40,000 spindles and 1,132 looms. C. R. Makepeace & Co., Providence, R. I., have prepared the plans and specifications. The Revolution Cotton Mills manufacture cotton flannels on present equipment of 31,000 ring spindles and 868 looms. E. Sternberger is president and buyer; H. Sternberger, treasurer; and G. T. Stone, superintendent. The Cone Export & Commission Co., N. Y., sells the product.

North Carolina, Hope Mills. Improvements are being made in the electric power plant of the Hope Mills Mfg. Company.

*North Carolina, Rockingham. Electric drive equipment, including 38 new motors, has been ordered by the Hannah Pickett Mills for the new mill building which is to be equipped with 4,500 spindles and 100 40-inch looms. The new building will be finished and the equipment in operation about August 1. The Hannah Pickett Mills manufacture wide print cloths. R. L. Steele is president; W. B. Cole, treasurer and buyer; and J. W. Jenkins, superintendent.

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The Autophone System
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Wool Year Book
In one volume are given outlines of woolen yarn manufacture, worsted yarn manufacture, on both English and French systems, weaving and finishing. There are numerous useful calculations, tables, recipes, and notes. 400 pages; green flexible leather, Price $1.25.
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Oak Tanned Belting
Worsted Aprons
R. H. HOOD COMPANY
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RICHARDS, ATKINSON & HASERICK
IMPORTERS
TEXTILE MACHINERY
MILL SUPPLIES
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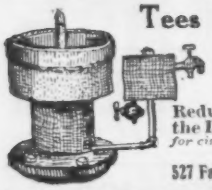
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Reduces Friction and Noise, Lightens the Lifts and makes quick drops. *Send for circulars.* 30 days trial allowed.
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Manufacturer of all kinds of SPINDLES, FLYERS, RINGS, TUBES, CAPS, etc., for Cotton, Silk, Flax, Woolen and Worsted Machinery.
Roving Spindles and Flyers a Specialty. Light Forgings.
REPAIRING OF ALL KINDS.

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FOR PRINT WORKS GINGHAM AND COTTON MILLS, BLEACHERIES' ETC., ETC'
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Manufactured by
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COTTON MILL NEWS

New Hampshire, Manchester. Work has been started on the foundation for an addition to the plant of the Amoskeag Mfg. Company.

North Carolina, Burlington. Fifty thousand dollars worth of new preferred stock has been issued by the King Cotton Mills Corp. As noted several weeks ago, the weaving department of this concern is being discontinued and the plant will be changed over to a carded hosiery yarn mill with new equipment throughout.

North Carolina, Charlotte. The Johnston Mfg. Company has been closed for a few days while new electric motors are being installed.

North Carolina, Cliffside. An addition is being built to the plant of the Cliffside Mills, manufacturers of staple ginghams, but the company is not ready to give out details of the increase. R. R. Haynes, president of this company, has been considering for several months a plan to develop a water power and enlarge the plant.

North Carolina, Gastonia. New Equipment is to be installed by the Gastonia Cotton Mfg. Company to replace old machinery. Contract has been placed for 5,040 new spindles which will be running about August 1.

*North Carolina, Roxboro. The additional equipment to be installed in the Roxboro Cotton Mills will not be used for the manufacture of cotton waste yarn as stated in a previous report. They expect to put in additional spindles to make their regular lines of cotton yarns from 12s to 14s. J. A. Long, Jr., is secretary and buyer.

North Carolina, Selma. Increases are to be made in the capacity of the Selma Cotton Mill which will double the production. Next week work will be started on the construction of an addition which will be completed about October 1, and equipped with 5,280 spindles for making 18s to 24s hosiery yarns. It has not been decided whether to drive by steam or electric power. The present plant is driven by steam power, but electricity may be used in the new plant. N. E. Edgerton is president and W. H. Call treasurer.

North Carolina, Troy. A number of new cards and roving and spinning frames have been installed by the Smitherman Cotton Mills.

North Carolina, Winston-Salem. A small amount of preparatory machinery has been ordered by the Arista Mills. A contract for 500 looms was recently placed.

Rhode Island, Centreville. The old roof is being torn off the Centreville Cotton Mill of B. B. & R. Knight preparatory to the building of a new flat roof.

F. C. BARTON
65 Worth Street, New York
MANUFACTURERS OF
"LILY" BRAND NARROW FABRICS
WEB, TAPE, BINDINGS, ETC.

THE BIAS NARROW FABRIC CO.
F. C. BARTON, President
65 Worth Street, New York
Bias and Straight Cut Fabrics and Ribbons.
Embossing and Cutting Customers Own Goods a Specialty.

COTTON MILL NEWS

Rhode Island, Pawtucket. Work has been started on a new $75,000 storehouse and weave shed at the corner of Barton and Pine Sts. for the Jenckes Spinning Company, manufacturers of cotton and novelty yarns, cotton and silk fabrics and tire fabrics. The building will be 2 stories high with a saw tooth roof. The dimensions will be 260 by 200 feet, and construction contract has been awarded the Willmarth-Mackillop, Inc. According to plans the lower floor will serve in the capacity of a storehouse for finished goods and raw materials and the upper floor will be used for weaving.

*South Carolina, Goldville. Work was started May 5 on an addition to the Banna Mfg. Company, 144 feet long, which is to be equipped with 4,096 spindles and 96 looms for weaving 39-inch convertible goods. The Shand Engineering Company of Columbia has the construction contract. In addition the contract has been let for a number of new houses for operatives. Recently an increase was made in the capital stock of the Banna Mfg. Company from $225,000 to $325,000. George M. Wright is president, superintendent and buyer, and J. P. Matthews is treasurer. Grinnell, Willis & Co., New York City, are the selling agents.

*South Carolina, Greenwood. The new machinery equipment of the Panola Cotton Mills will be in operation by July 1.

South Carolina, McColl. The Marlboro Cotton Mills have arranged to install considerable new electric drive equipment including alternating current generators and several motors for power distribution. The contract has been placed with the General Electric Company.

.....

Mills Starting Up.

*Georgia, Chickamauga. All of the preparatory and spinning machinery in the new cotton mill of the Crystal Springs Bleaching Company is in operation and as yarn is turned out the looms will be started up on cotton bag goods which will be converted in the company's bleachery.

Georgia, Elberton. It is reported that the Home Cotton Mills' property has been purchased by J. C. Plonk, president of the Cherokee Falls (S. C.) Mfg. Company and that the plant will be started up under the name of the Elberton Mfg. Company. The Home Cotton Mills shut down last September. There are 8,400 ring spindles and 174 looms which have been operated on drills. Mr. Plonk is also president of the Phoenix Mfg. Company of King's Mountain, N. C.

Massachusetts, Turner's Falls. The Turner's Falls Cotton Mills have resumed manufacturing after a week's shut down in order to give the help who went out on a strike a few weeks ago a chance to return to work. Most of the employes took advantage of the opportunity and all the departments were started. During the time the plant was closed a number of repairs were made.

W. E. Armstrong has accepted the position of overseer of carding at the E. A. Smith Manufacturing Co., Rhodhiss, N. C.

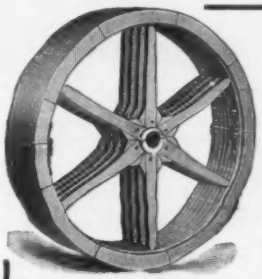
Belt Efficiency Increased

5% to 35%

Surely this kind of money saving interests you? If you want proof that Warren's Pulley Cover can do this — just pin this ad to your letterhead and mail to us.

The Warren Co., Mfrs.

Removed from Chicago to: Chicago Road, NILES, Mich.



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New York Branch, 88 Warren Street
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Sales Agencies in all the Principal Cities
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DIXON'S

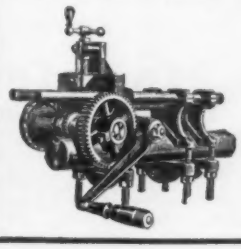
GRAPHITE CUP GREASE

Send for Booklet No. 120. "Valuable Graphite Products."

Made in JERSEY CITY, N. J. by the JOSEPH DIXON CRUCIBLE COMPANY

YOUR REPAIR SHOP
Is not complete unless equipped with one of these

BURR KEYSEATERS



They cut perfect keyseats in shafting anywhere. Save time, delays and money. No. 1 keyseats shafts to 5 in. diameter. Price with full set of cutters, $40.00 net. No. 2 takes shafts to 8 ins. Price, with cutters, $75.00 net.

Interesting booklet free.

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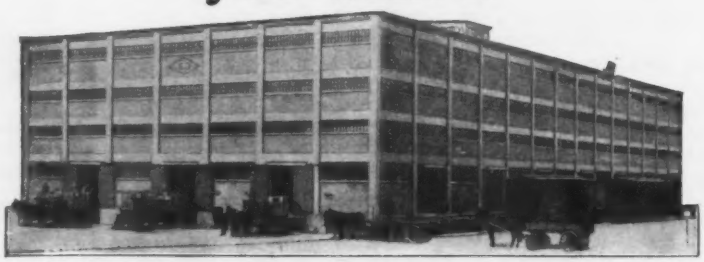

Dodge Warehouse at Mishawaka, Ind., carrying over 200,000 Items of the Dodge Line from which Branches and Dealers can draw at any hour or working day in the year

"Say Central give me Dodge"

GAY BROTHERS COMPANY, operating the Cavendish Woolen Mills, Cavendish, Vt., telephoned the Dodge branch at Boston, 2 p. m. one afternoon for shafting and hangers. The next morning at 10 the material was in Cavendish and the morning following was installed and in immediate use. Cavendish is 150 miles from Boston. In writing the Boston branch, Gay Brothers say:

"Allow us to congratulate you on your promptness in filling our order. Will remember you in the future when we need anything in your line."

The message from Gay Brothers was an emergency order. They needed the equipment quick and we fixed them out in double quick time. This is a service we offer to all our customers. Access today, tomorrow, now—to the largest stock of pulleys, hangers, pillow blocks, bearings, collars, couplings, clutches, shafting, etc., in the United States, and quality goods at that. What the Red Cross is to the world in time of need, just so is the Diamond D to the disabled manufacturer.

It is Dodge Service plus Quality that has made our trade mark pre-eminent in the industrial field. There is a record back of every argument we make for your business. There is reliability, dependableness, honesty in every article we make. There is satisfaction—and what is more gratifying than a satisfied customer.

Get in touch with the Dodge way of doing things. Write, wire or phone the nearest branch on your next transmission requirements.

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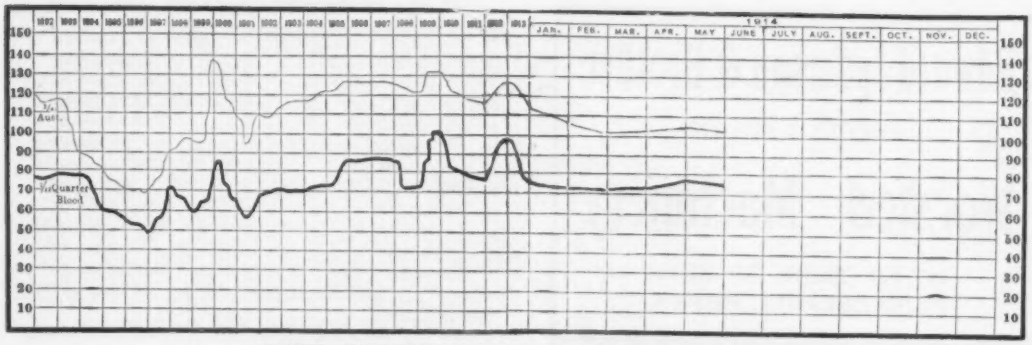
At-Once Service Stations



GRAPHIC CHART SHOWING RANGE IN PRICE OF WORSTED YARN.

WOOLEN AND WORSTED YARN MARKETS

Many spinners of both French and Bradford yarns are busy, mainly on contract orders that were taken a few months ago and which will keep the spinners fairly occupied for the next six weeks. Business is very quiet and it is difficult to land new orders unless the mill happens to make some specially interesting price. The wool market is extremely firm and the tendency with all spinning mills is toward an advance in price. Within the past few months there has been an advance of about five cents per pound on French spun yarns. Bradford yarns have also been increased by three or four cents per pound. As the mills have sufficient orders unfinished to last them for several weeks they naturally are not inclined to take new business except at advanced prices.

There are some inquiries for 2/40s, 1/2 blood, 1/30s high 1/4, and 2/40s double and twist yarns, also some solid blacks and mixes; these inquqiries coming chiefly from the men's wear trade, while the dress goods manufacturers, with the exception of a few, are short of orders. No inquiries are coming in at this time from that trade.

Spinners of worsted knitting yarn are busier than the woolen spinner, as the bulk of the orders which the knitters have booked call for worsted yarns, the counts being used are 2/16s to 2/20s in 1/4 blood, 1/2 and 3/8 blood. The 1/4 and 3/8 grades are used for men's and boys' sweaters and the 1/2 blood grade enters mostly into infants' and ladies' goods. The contracts for these yarns were placed early in the year and will run along until midsummer before they are exhausted.

Report has it that foreign spinners of worsted yarns are to make a strenuous assault upon the American market during the coming season. On high counts from 40s to 70s it is said that they are offering their yarns much below the prices quoted for domestic yarn. On the low counts in 1/4 and 3/8 bloods our domestic spinners are so close to the European spinners in price that it does not appear they will be successful in securing much business. On the higher grades it is reported that they have already secured some heavy orders in this market. In order to meet the demands of the American trade a number of foreign spinners who have been in this country studying trade conditions, are ordering machinery from local builders to put up their yarns on dresser spools to suit the American customer.

BRADFORD SPUN YARN

2/16 Ingrain (black)	54
2/16 Ingrain (light grey)	55
2/16 Ingrain (white)	56
2/12 to 2/16 low common	60-62½
2/20 to 2/24 low 1/4	62-65
2/20 to 2/25 1/4 blood	67½-70
2/26 to 2/28 1/4 blood	70-72½
2/32 1/4 blood	72½-75
2/20 3/8 blood	75-77½
2/26 3/8 blood	80-82
2/32 3/8 blood	82-84
2/36 3/8 blood	82½-85
2/40 1/2 blood	92½-95
2/40 delaine	95-1.00
2/50 delaine	1.02½-1.05
2/40 Australian	1.02½
2/50 Australian	1.10-1.12½
2/60 Australian	1.17½-1.20
3/30 and 3/32 luster	95-97½
3/36 luster	1.10-1.12½

KNITTING YARNS

Dyed and Bleached—Bradford System

2/7s straight 1/4 blood	75-77½
2 and 3 ply 10s-15s straight 1/4 blood	77½-80
2 and 3 ply 16s-20s straight 1/4 blood	77½-80
2 and 3 ply 20s-24s straight 1/4 blood	80-82½
2 and 3 ply 24s-28s straight 1/4 blood	82½-85

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MINERVA MILLS
Spinners of WORSTED YARNS
For Weaving and Knitting
In the Grey and in all colors and mixtures
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Imported Worsted Yarns
For Knit Goods, Men's Wear and Dress Goods

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242 Chestnut St., Philadelphia, Pa.
French Spun Worsted and Merino Yarns
Bradford Spun Yarns
Woolen Yarns
FOR WEAVING AND KNITTING

Woolen and Merino YARNS
Eaton Rapids Woolen Mills
EATON RAPIDS, MICHIGAN

OTTO KUNZE
30 Church St., Room 501, New York City
Our Specialty: Fibre Covered Shuttles
Of Every Description
Samples sent on application

FRENCH SPUN YARN

1/20 1/4 blood	72-74
1/20 high 1/4	75-77
1/20 3/8	77½-80
1/20 high 3/8	80-82½
1/20 1/2 blood	82½-85
1/30 1/2 blood	85-87½
1/40 1/2 blood	90-92½
1/50 delaine	97½-1.00
1/40 Australian	92½-95
1/50 Australian	1.00-1.02½
1/60 Australian	1.10
1/70 Australian	1.15-1.20

For two ply knitting twist add 5c. additional to above prices.

For two ply weaving yarns add 7 1/2c. additional to above prices.

FRENCH SPUN MERINO YARNS—FINE ONE-HALF BLOODS

Standard Grade

1/20 50/50 White Merino Cop	67
1/30 50/50 White Merino Cop	69
1/40 50/50 White Merino Cop	71
1/20 60/40 White Merino Cop	71
1/30 60/40 White Merino Cop	73
1/40 60/40 White Merino Cop	75
1/20 70/30 White Merino Cop	76
1/30 70/30 White Merino Cop	78
1/40 70/30 White Merino Cop	80
1/20 80/20 White Merino Cop	80
1/30 80/20 White Merino Cop	82
1/40 80/20 White Merino Cop	84
Sliver and Sanitary Mixes	3c. more
Coning on 1/20	2c. more
Coning on 1/30	3c. more
Coning on 1/40	4c. more

WOOLEN AND MERINO YARNS

Woolen and merino yarn spinners today are not very busy, and not much activity is looked for until early in July when old contracts will expire. There is little doubt but that the trade will come fairly well into the market for goods. No samples are being called for as the yarns used will be the same as those supplied on initial orders, such as 2/20 to 2/23 cut in colors, Oxfords and some double bleaches. The trade will continue depressed until duplicate orders are received. Prices are firm with no anticipation of being lowered at an early date, as the raw stock market is extremely high and spinners who are now making concessions in their prices in an endeavor to stimulate business, will quickly raise their quotations when the demands for yarns begin to come in.

The prices quoted in our schedule may seem somewhat high when compared with the prices offered by some spinners who are making cuts in their prices in a strenuous effort to secure business, frequently at a loss.

WOOLEN AND MERINO YARNS

2/20 Light Grey Mixed	80%	20%	52-55
2/20 Light Grey Mixed	90%	10%	57½-60
2/20 Light Grey All Wool			62½
2/20 Colored All Wool			60
2/20 Bleached	80%	20%	62½-65
2/20 Bleached	90%	10%	67½-70
2/20 Bleached All Wool			70-72½
2/23 Colored All Wool			62½-65
2/23 Bleached 90/10			67½-70
2/23 Bleached All Wool			72½-75
2/25 Light Grey Mixed All Wool			80-82½
2/25 Bleached All Wool			85-87½

THE RAG AND SHODDY MARKET

Trade is quiet, but prices are firm. Shoddy manufacturers as a rule are buying in small lots to cover immediate requirements. A few buyers who have asked for quotations on large lots have found a decided stiffening of prices. This shows the inherent strength of market conditions. The foreign demand for rags is steady. Spinners are buying but little stock, either in the form of rags or shoddy. Wool waste shares the general dullness, prices being firm, particularly for the better grades of stock. The cotton waste trade is particularly dull and quotations are higher in sympathy with the raw cotton market. The exports of woolen rags from Boston, Philadelphia and New York for March and April were as follows:

Month	lbs.	value
April, 1914	1,519,655	$50,270
March, 1914	1,665,970	65,223
April, 1913	2,310,291	69,848

SHODDIES AND EXTRACTS

White yarn, best all wool	46-49
White knit, all wool, best fine	30-40
White, knit, No. 2	23-30
Light yarn, extra fine	35-36
New pure indigo blue	24-27

Merino

Fine light, all wool	20-22
Medium light, all wool	19
Fine black, all wool	17-19
Fine dark, all wool, best grade	18-20
Medium dark, all wool, No. 2	13-15
Red knit stock, strictly all wool	20-24
Red flannel, all wool	19-22
Dark Blue for hosiery, strictly all wool, No. 1	20½-22
Dark blue for hosiery, not all wool, No. 2	13-15

NEW WOOLEN RAGS

Fine merchant tailors	6-8
Choice light colors	7-8
Browns	12
Blacks	6
Blues	9½
Fine dark	7-12
Medium dark	4-5

Serges

Black	10
Blue	10-11

Flannels

Very light	17-18
Mixed	10-11
Black	6-7

SOFTS AND KNIT STOCK

Soft woolens, best	5½-6½
Old white flannels	11-14
Old red flannels	10-11
Old blue flannels	3-5
Old plaids	3½
White stockings	20-24
Clear dark hoods	7-8
Light hood stock	13-14

A. F. Brannon has accepted the position of overseer of spinning at the Roanoke Rapids Cotton Mill, Roanoke Rapids, N. C. He was formerly employed at the Swift Manufacturing Co. at Columbus, Ga.

John H. Grady, overseer of dyeing for Gerald Cooper, mercerizer, dyer and bleacher of yarns at Providence, R. I., has tendered his resignation. He will be succeeded by Andrew Bray, who comes from Willimantic, Conn.

Heywood Ramsden has accepted the position of overseer of finishing at the Wakefield Mills Co., Wakefield, R. I. He comes from Stafford, Conn.

Interruption of Production

is recognized by textile mill operators as the most costly element of repairs.

Allis-Chalmers TEXTILE MOTORS

are so liberally designed and so sturdily constructed that they will operate for years without need of repairs providing they are properly supplied with oil while in service.

"Motors for all drives"

Allis-Chalmers Manufacturing Company

Power and Electrical Equipments

Milwaukee - Wisconsin

For all Canadian business refer to Canadian Allis-Chalmers, Limited, Toronto, Ont.

Dependable Yarns for All-Silk and Silk-Mixture Goods

Hundreds of prominent manufacturers of silk and silk-mixture goods have found it profitable to use and *continue* to use

Cheney Silk Yarns

as the basis of their products. These manufacturers are putting out quality goods and naturally require *quality yarns*. No better proof of the quality of Cheney Silk Yarns can be found than the fact that such manufacturers have sufficient confidence to buy them regularly and place their own names on the finished product.

Resist dyed yarns for cross dyeing of woolen mixtures, special silks for electrical and insulation purposes, and all other specials or staples delivered promptly. Quotations and samples gladly sent.

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are of superior quality, and include practically every kind of goods made of silk—whether for dresses, millinery, decoration or upholstery, the haberdasher or manufacturer, man or woman.

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National Silk Dyeing Co.

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Skein Silk Dyeing of every description for every class of textile manufacture.

Hosiery Dye—Boil-off, weighting and dyeing, treated especially to meet the requirements of the hosiery and knitting trade.

Piece Dyeing and Finishing—All silk and silk mixed goods.

Printing—Surface and warp printing.

WORKS:

Paterson, N. J. Dundee Lake, N. J. Allentown, Pa. Williamsport, Pa.

THE SILK MARKET

The silk market is firm with no material change in prices. The new crop of silk will not arrive from Japan much before the 15th of July, and then only in small lots. The first shipment of new silk from Canton has been received, but the shipment was small and the market remained firm.

The Yokohama market is quiet and prices steady. There is very little silk left, one estimate being three thousand bales, a large per cent. of which is a poor quality. Some anticipate a shortage of the raw product, even after the new silk begins to arrive. This condition may bring on an advance in prices.

In Milan, Italy, the weather has been very unseasonable of late and it is reported that the silk crop may not come up to the last year's record. The crop is likely to be late.

In Lyons, France, the silk manufacturers are reported very busy. Much of the raw product is being used. This condition exists in all of the European silk districts.

In this country the silk manufacturers are busy, but are not buying much silk, although their stocks are reported depleted. When they do come into the market again much activity in the raw silk trade will result. Some are ready to predict that the market will advance before the new silk arrives.

The silk business is dull, but all are optimistic as to a good fall business. It is stated that yardage in broad silk will be much increased the coming fall, which is good news for the manufacturers; also that much of the finished product will be used for linings. Roman stripes are still quite popular, while satin-faced cloth will be much used for crepe effects in the fall. Taffetas and all plain soft finished goods are predicted for good future sellers.

The ribbon manufacturers, while reported busy on both broad and narrow ribbons, are feeling the effect of the new stove pipe style of ribbon, which is enjoying quite a run, being used extensively in the millinery trade.

Cotton manufacturers have not, as yet, come into the market for any great supply of silk, but it is thought that later on they will be important factors as buyers. The hosiery and underwear manufacturers are buying silk on a hand-to-mouth basis. It is thought that artificial silk may have something to do with this condition. Later on, it is expected that they will again buy their usual supply.

The silk industry can be said to be on a sound basis, with good prospects in all lines. The trade have every reason to expect an unusual fall business. Below are prices current:

European

Grand Extra Classical Piedmont 12/14	5.05-5.10
Extra Classical Italian 12/14 12/16	4.70-4.75
Classical Italian 13/15 24/26	4.50-4.55
Best No. 1 Italian 13/15 24/26	4.45-4.47½

60 days' basis

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Telephone, 6174 Gramercy
American Woolen Building
221 Fourth Avenue, New York
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Silk on Spools, Cones, Quills, Beams
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MANUFACTURERS OF
Silk, Cotton and Mercerized Narrow Fabrics
SPOOL TAPES A SPECIALTY
TELEPHONE CONNECTION
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Spun Silk Yarns

For All Purposes

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Fast Dye Organzines for Woolen Manufacturers a Specialty

Mills: Bethlehem, Pa., Philadelphia, Pa., Scranton, Pa. New York Representative, Wm. Ryle & Co., 225 Fourth Ave.
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Chicago Office, 206 So. Market St. Boston Office, 78 Chauncey St.

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ADDRESS ALL CORRESPONDENCE TO NEW YORK OFFICE,
CARE E. GERLI & CO., 119 E. 27th STREET
All Frames Equipped with Latest Improvements, Particularly W. & R. Oscillating Reed Motion,
The Latter Assuring Complete Relief to Strain on Silk
GOODS FULLY INSURED BY FIRE. PROMPT SERVICE GUARANTEED.
Raw Silk Warping a Specialty.

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Domestic Thrown Silk of every description. Fine Pure Dye Silks for the woolen trade a specialty. Importers of European and Asiatic Raw Silk.

225 Fourth Ave., Corner 18th St., NEW YORK CITY

Japan

Filature Kansai Extra Extra	4.47½-4.50
Filature Kansai Extra 13/15	4.35-4.40
Filature Shinshu Extra 13/15	4.35-4.40
Filature Kansai Best No. 1 13/15	4.20-4.25
Filature Kansai No. 1 13/15	4.10-4.15
Filature Shinshu 13/15	4.05-4.10
Rereels No. 1 13/16	Nominal
Rereels No. 1½ 13/16	Nominal
Rereels No. 1½-2	Nominal

6 months' basis

China

Canton XXA 14/16 (New Silk)	3.45-3.55
Canton XXB 14/16	3.30-3.35
Tsatlee Blue Dragon Flying Horse	3.25-3.30
Tsatlee Kuh Kee Mars No. 1	2.75-2.80
Tussah Filature 8 Cocoon No. 1-2	1.45-1.50

6 months' basis

SPUN SILK

Manufacturers are busy and behind in their orders, even at the ten cents a pound advance which occurred last month. It is predicted that much spun silk will be used the coming season, but no further advance in prices is expected. Prices are quoted below:

60/2	3.80
50/2	3.70
40/2	3.60
30/2	3.45
20/2	3.35
10/2	3.25

ARTIFICIAL SILK

The artificial silk manufacturers are passing through a period of dullness. This is due to the fact that mills are over-stocked. This condition will soon change, as much artificial silk will be used in the near future. Prices are quoted below, which are a little lower than our last report:

150 Deniers First Quality European	1.90
150 Deniers Second Quality European	1.80
150 Deniers English A.—Bleached	1.90
150 Deniers English B.—Bleached	1.80
150 Deniers English C.—Bleached	1.70
150 Deniers Elberfeld Raw	1.72
150 Deniers Chardonette Natural	1.85

*Pennsylvania, Lebanon. The new Cumberland Silk Company, located at 12th and Walnut Sts., has started operations with 18 hands. Alexander Bruenn, formerly of Catasauqua, heads the new company. The incorporation of this concern was recently noted with capital stock of $15,000. Broad silks are being woven.

A. P. Villa & Bros.

Raw, Thrown and Dyed Silks

Silk on Quills or Beams. Hosiery Silk on Cones

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Schappe, Spun Silk, Cordonnets for Sewing in Skeins—on Cops—Spools —Cones—Beams.
In Gray or Dyed.
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DYED SILK FOR THE KNITTING TRADE
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Mercerized and Cotton Yarns, Yarns and Threads

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Costs Calculated, Advice Given on Mill Matters, Damaged Goods, and on Textile Questions of every kind
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Tram, THROWN SILK, Organzine.
ARTIFICIAL OR WOOD SILK.
Plain, Gassed, Mercerized, Prepared and other Cotton Yarns. Polished and Glazed Threads and Yarns. Mohair and Worsted, Tinsel and Turkey Red Yarns.
Best Quality Harness Twine
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Silk Throwing Mills BOONVILLE and YONKERS, N. Y.
YARNS

SILK MILL SUPPLIES
OF EVERY KIND AND DESCRIPTION
Also Power Transmission Supplies for General Mill Use
I. A. HALL & CO.
Paterson, N. J.
Allentown Reed, Harness and Mill Supply Co.
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Warping and Winding on Commission
Work Done on Frames with Swiss Motion
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Cotton, Wool and Silk Conditioning
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NEW YORK
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Cleans Wool, Floors, Anything
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23 East Twenty-Sixth Street, New York
Importer and Dealer in all kinds of
RAW SILK
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SILK MILL NEWS

New Mills.

*Massachusetts, Lawrence. Manufacturing has been started in the small silk plant equipped at 616 Essex St. by Henry Bauer, and lines of broad silks and mercerized brocaded novelties are being manufactured on twelve looms, operating by electric power. Mr. Bauer is manager and buyer and will sell the product to jobbers.

New Jersey, Paterson. Cohen & Rines is the name of a new broad silk plant located at 99 River St with 10 looms.

New Jersey, Paterson. The partners composing the S. K. S. Silk Company, located in the New Hall Mill, have decided to separate. One of them will continue the S. K. S. Silk Company and the other will start a new silk company in the Levy Mill at the corner of River and Bridge Sts.

*Pennsylvania, Avoca. John Ramsey, who has been superintendent of the Shamokin plant of J. H. & C. K. Eagle, Inc., and his son will operate the new silk throwing mill in Avoca which is being built by local business men. The factory will be 50 by 100 feet and will be equipped with 4,000 spindles for throwing a special line of crepe silk. Mr. Ramsey has moved to Avoca. He formerly lived in Phillipsburg, N. J.

*Pennsylvania, Doylestown. Several car loads of material to be used in the construction of the new silk mill have arrived. The new project is headed by John Schwartz, Jr., of Philadelphia, and details have been given previously.

Pennsylvania, Lehighton. A company has been chartered under the name of the Lehighton Silk Mills, Inc. with capital stock of $8,000 to establish a broad silk weaving plant on the third floor of the Carbon Silk Mill. As noted in a previous report 75 looms will be installed for the weaving of broad silks and employment will be given to about 50 hands. The incorporators of the new company are Joseph Zubow, of J. Zubow & Co., 57 E. 9th St., N. Y. City; Anna K. Ott, and Abraham Salzberg, Paterson, N. J. J. Zubow & Company will be the selling agents.

*Pennsylvania, Reading. For the present all the product of the new silk mill of Charles Steiner will be taken by Stunzi Sons Silk Company, Inc., for whom Mr. Steiner was, until recently, superintendent and manager. The new plant is at Reed and Elm Sts., and will have equipment of 360 spindles and 50 broad silk looms. Manufacturing will be started in May. It is expected that 25 additional looms will be installed soon after the initial equipment is running smoothly.

Enlargements and Improvements.

Massachusetts, Taunton. The first installment of 50 new looms ordered by the Taunton River Mills has been received. The balance of the order will be received shortly and placed in operation at as early a date as possible. Silk and silk and cotton dress goods are manufactured on present equipment of 450 looms. D. G. Dery of Allentown, Pa., is president, treasurer and buyer.

SILK MILL NEWS

*Connecticut, Putnam. New machinery equipment being installed by the Eureka Silk Mfg. Company, manufacturers of sewing silk, machine twist and embroidery silks, includes 8 spinners, 2 doublers, 1 reel and 1 stretcher.

Massachusetts, Fall River. Albert E. Fawcett, treasurer and manager of the Fawcett Silk Company which was established at 189 Stafford Road a few months ago, advises that he has no interest in the New Bedford silk mill project. On the other hand Mr. Fawcett expects to incorporate the Fawcett Silk Company, capital stock of $15,000, and add 1,000 new spindles and 36 new looms, bringing the equipment up to 1,276 spindles and 60 looms for making dress silks. New capital is now being subscribed and all but $2,000 of the required amount has been pledged.

*New Jersey, Franklin. It is announced that Frose & Van Riper, Inc., of Paterson, have closed the branch plant at Franklin to make alterations and that a lot of new machinery is being installed. In earlier reports it was stated that the plant had been shut down indefinitely.

New Jersey, Paterson. Blake Bros. & Govin have just added a number of new looms and expect to make a still further increase in the near future.

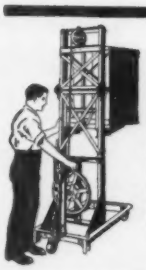
New Jersey, Paterson. Cohen & Cohen, until lately located on Lyons St., have dissolved partnership. One partner has taken half the looms and is located at 15 N. 2nd St., and the other is located at Jackson and Taylor Sts. with 14 broad silk looms. Six looms will be added to the latter's equipment at once.

New Jersey, Paterson. The Newark Silk Company has just added 10 very wide box looms, making a total of 48 looms in the plant. A further addition may be made in the fall.

New Jersey, Paterson. Space in the Waverly Mill has been leased by the Tynan Throwing Company and their plant will be moved from the Dale Mill, where they have been located for many years, to the Waverly Mill. As noted in another part of this issue the Tynan Throwing Company has purchased the throwing machinery of John Hand & Sons, Inc., at Wilmington, Del., and is installing this with the original equipment in the Waverly Mill.

*New Jersey, Paterson. Details of the new machinery equipment to be installed in the addition to the plant of Samuel J. Aronsohn, at E. 18th St. and 10th Ave., have not been worked out but it is probable that 100 new looms will be added. The new mill will cover a lot 184 by 58 feet and will be 4 stories high, and it is to be completed by August 15. About 30,000 square feet of space in the addition will be occupied by Samuel J. Aronsohn, and the remaining space will be rented to other manufacturers.

New Jersey, Paterson. Samuel Pollock, a manufacturer of broad silks, will move his plant from 22 Paterson St. to the Harding Mill, Straight St., in the near future, and will add nine more looms, giving a total equipment of 35 looms.



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Special Machinery Built. General Machinery Repairs.
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"BEST BY TEST"
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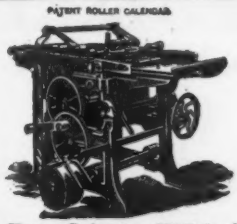

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Supplied by any of the leading
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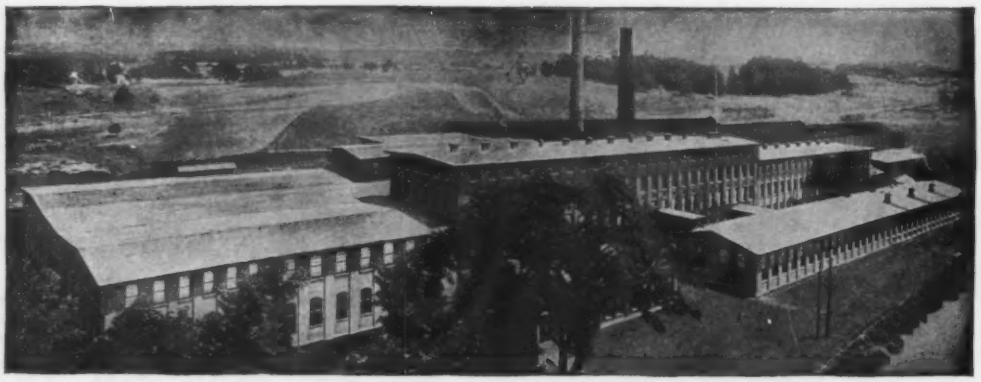

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Acetic, 100 lbs.	2.16-2.56
Citric, domestic	38½
Copperas	65-80
Oxalic	7-8
Sulphuric, 66°, 100 lbs.	1.00-1.25
Muriatic, 18°	1.15-1.65
Tartaric crystals	30-33

Miscellaneous Chemicals and Dyestuffs

Acetate of lime, gray, 100 lbs.	2.50-2.60
Alum, lump	1.75-1.90
ground	1.85-2.00
powdered	3.00-3.15
Aqua ammonia, 26°	2-5½
Borax	3-5
Cream tartar, crystals	23-25
Fuller's earth, powdered, ton	17-20
Glauber's salt	75-85
Potash, chlorate, crystals	8-9
powdered	9-14
carbonate	3½-6
Soda, bicarbonate	1.15-1.50
Soda, caustic, domestic, 60 per cent.	1.80-1.91
Sal., American	65½-85
Vitriol, Blue	4.76-5.00
Acetate of soda	4-6½
Acid, picric, best crystals	70-75
tannic, commercial	36-37
Albumen, egg	42-65
blood	20
Aniline, oil	9½
salt crystals	8½-9½
Alizarine	15-16
Bichromate of potash, American	7-8½
Bichromate of soda	4½-7½
Bisulphite of soda	75-1.25
Cutch, bales	5-8
Dextrine, imported potato	4-7½
Divi-divi, ton	33-47

FIRES.

New York, Perry. A fire in the coal pocket of the Perry Knitting Company caused damage estimated at $1,000.

North Carolina, Tarboro. The dyeing department at the local plant of the Runnymede Mills has been destroyed by fire which started during an electrical storm. The loss is estimated at $12,000 with $5,000 insurance. They are making arrangements to rebuild and install new machinery and it is not espected that deliveries of orders will be delayed more than ten days.

Pennsylvania, Philadelphia. The plant of the Kensington Manufacturing Co., located at 1109 N. Front St., where they were engaged in the manufacturing of cotton and woolen waste, was recently destroyed by fire, the loss being estimated at $25,000. This is the fifth fire within three years.

Pennsylvania, Philadelphia. Valuable patterns, stock and the second floor of the 3-story stone building occupied by Wm. Schofield & Co., Krams Ave., Manayunk, was damaged by fire, the loss being estimated at about $35,000.

Pennsylvania, Philadelphia. A portion of the building occupied by the Star & Crescent Co., manufacturers of Turkish towels, etc., damaged stock to the extent of $8,000. The building, which is located at Hancock St. and Lehigh Ave., will be repaired at once and manufacturing will be resumed in full next week.

The WM. H. LORIMER'S SONS CO.,

MERCERIZERS AND DYERS

Manufacturers of

MERCERIZED YARNS

FOR ALL PURPOSES

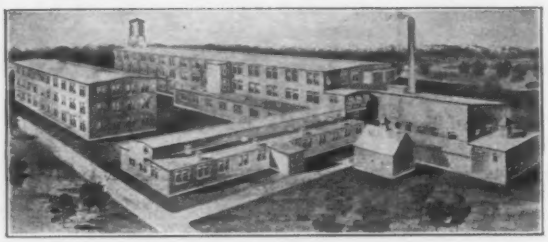
ONTARIO AND LAWRENCE STS., PHILADELPHIA, PA.

Skeins, Cones, Tubes and Warps

Western Representative,
E. G. HARPER,
701 Medinah Bldg., Chicago, Ill.

PETER B. MCMANUS, Pres. and Treas. EDWARD J. MCCAUGHEY, Secy. and Mgr. JOHN MCMANUS, Vice-Pres

HOME BLEACH AND DYE WORKS, Inc.



DYERS, BLEACHERS AND MERCERIZERS OF

COTTON YARNS

IN SKEIN, AND LONG AND SHORT

CHAIN WARPS

FAST COLORS A SPECIALTY

Daily Capacity 20 Tons

FAST COLORS AND BLACK FOR WORSTED TRADE

Office and Works, Pawtucket, R. I.

ESTABLISHED 1881

GLOBE DYE WORKS CO.,

Successors to R. Greenwood & Bault

DYERS BLEACHERS AND MERCERIZERS

OF COTTON WARPS AND SKEIN YARNS

Globe Bleach and Dye Works, Oxford and Worth Sts., Frankford, Pa. 140 Chestnut St., Philadelphia

Duxbury's

English Calender Roll Papers

For Embossing and Other Calenders.

Chas. A. Johnson & Co.

Sole Agents for America

55-57 Franklin Street, - New York

THE PEERLESS COMPANY

Willard and Jasper Sts., - Philadelphia

DYERS OF SKEIN SILK

FOR ALL TEXTILE PURPOSES

Fast Colors on Silk for Worsted Manufacturers

Pure Dye and Weighted. Bright and Souple.
Dyers of Peerless Black on Artificial Silk.

JOHN F. DAVIDSON

(ORIANNA BLEACH WORKS)

BLEACHER

Of Turkish Towels, Cotton Yarns, Underwear, Cotton Hosiery and Tapes.

2558-2564 North 3rd St. 2557-2563 Orianna St., PHILADELPHIA
Office, 2557 Orianna Street. Correspondence Solicited.

HOPKINSON DYEING AND TEXTILE WORKS

MERCERIZERS

Dyers and Bleachers of Skein Yarns. Twines and all Narrow Fabrics. Printers' Knotting Cords a specialty, on tubes or balls (our Fast Black will please you).

T. HOPKINSON, Prop'r and Mgr. G. W. HOPKINSON, Supt.

Office and Works, 259 Forest St., FALL RIVER, MASS.

DYERS of all kinds of YARNS

For Manufacturers of: Men's Wear, Dress Goods, Carpets, Rugs, Upholstery, Hammocks, Shoe Goring, Webbing, Gas and Electric Tubing, Braids and Novelties. Better work, prompter, better service than you get elsewhere.

T. BROPHY'S SONS, Jasper St., above Clearfield St., Established 1845 PHILADELPHIA, PA.

SILK MILL NEWS

New Jersey, Paterson. The Irving Silk Company, now located in the Harding Mill, has leased space in the Rodgers Mill on Van Houten St., and will add 20 more looms, giving a total equipment of 84 looms.

New York, Amsterdam. It is reported the Amsterdam plant of Julius Kayser & Co. will be enlarged during the summer and that plans have been prepared for the erection of a building 250 feet long by 50 feet wide, 3 stories in height, to adjoin the present plant. It is stated this will enable the concern to practically double the present output in Amsterdam. The contract is expected to be let within a few days as it is hoped to have the new building ready for occupancy this fall. This is the only enlargement projected among the manufacturers of Amsterdam so far as known with the exception of the large concrete dyehouse now in course of construction for Stephen Sanford & Sons, Inc.

*New York, Binghamton. Early reports of the increase to be made by the Chenango Silk Company were exaggerated. The plans call for an additional story on the office building, 44 by 40 feet, which will cost about $3,000 or $4,000.

New York, Gloversville. The new mill being erected on Washington St. for the Normandie Silk Mills, Inc., will be 40 feet wide and 75 feet long, 3 stories high, and will be constructed so that enlargements can be made as the further growth of the business warrants. A boiler of 80 h. p. will be installed for steam for the dye house and for the heating plant.. Under the management of L. E. Winnie this new concern has been placed on an efficient and profitable basis in a few months and the temporary quarters which the company occupies have been outgrown. Mr. Winnie has had a number of years experience in manufacturing jersey silk cloth for gloves and underwear which is the product of the Normandie Mills.

New York, Matteawan. Ludwig Littauer has purchased the manufacturing property recently occupied by an air brake company and it is reported will remodel it and remove his Matteawan plant to the new quarters. This change will give larger manufacturing space. Silk throwing of organzine and tram is carried on in the Matteawan plant of Ludwig Littauer on 10,000 spindles. The New York office is at 107 Greene St.

Pennsylvania, Allentown. Excavating for the foundation for a new mill for Kaltenbach & Stephens has been started. This latest addition will be 76 by 360 feet, 1 story high. Joseph P. Snyder has the contract for the foundation and will push the work to completion as rapidly as possible. A Newark concern has the contract for the construction of the building. Kaltenbach & Stephens manufacture narrow ribbons and have plants at Allentown and Newark.

COPPER Printing Rollers Singe Plates and Sheets

Taunton-New Bedford Copper Co.

New Bedford, Mass.

OUR GUARANTEE:
SUPERIOR QUALITY PROMPT SHIPMENTS

You Save Enough Insurance to Pay for the Equipment

So it costs you NOTHING to have the AMERICAN WATCHMAN'S CLOCK. Fully approved by all insurance companies. We equip factories with Fire Alarms, Signals, etc., also Employee's Time Recorders, and Telephone Systems. Electric Time System consists of Master Regulator in office with secondary electric clocks throughout the mill, Insuring accurate time. Send for particulars.

Pettes & Randall Co., 150 Nassau St., New York

The Chicago Portable Watchman's Clock

Approved by the National Board of Fire Underwriters and accepted by all Insurance Companies

The Perfection of Watchman's Detector Service

Simple, Efficient, Tamper-proof, Durable

WATCHMAN'S CLOCK AND SUPPLY CO.

9 CHURCH STREET, NEW YORK

For Perfect and Economical Results in Speck Dyeing Worsted Piece Goods, use

CRYSTAL SPECK DYE

Covers all vegetable and other specks.
Does not stain white silk threads in goods.

Worden Chemical Works
4 Cedar Street, New York

ARABOL MANUFACTURING COMPANY

100 William Street, New York

Sizing, Stiffening, Softening and Finishing Compounds, Glues, Gums, Dextrines, Starches, China Clay, Bone Size and Grease, Soap, Tallow, Weighteners

EVERYTHING IN SIZINGS, Etc. SAMPLES MATCHED. HIGH GRADE GOODS

Barrett Specification Roofs

Mississippi River Power Company, Keokuk, Iowa
Engineers: The Stone & Webster Corporation, Boston
Roofers: St. Louis Roofing Co., St. Louis, Mo.

On the great Keokuk Power-house

THE mighty Mississippi has been dammed at Keokuk, Iowa. Under the enormous power-house pictured above, the Father of Waters is now perforce spinning vast turbines with the power of 150,000 horses.

The entire enterprise is a triumph of modern engineering skill. Quality has been the first consideration in everything.

And the same engineering skill that harnessed the waters and constructed the foundation selected a Barrett Specification Roof as the building's crown.

How did it happen that a comparatively inexpensive roof was chosen for so monumental a building? Because The Barrett Specification Roof is the best at *any* price. It would have been used if it had cost *twice* as much.

Such a roof will probably last twenty years or more without a cent of expense for maintenance. Its unit cost, which is the thing that modern engineering science considers, is about a quarter of a cent per foot per year of service, a lower figure than that for any other type of roof.

The Barrett Specification prescribes with precision the materials to use and the method of application, thus furnishing a basis for competitive bidding that is fair to the conscientious contractor, and providing means for insuring correct workmanship and materials. Include it verbatim in your own building specifications and you are assured of the best roof at the lowest price.

Booklets on request.

Special Note We advise incorporating in plans the full wording of The Barrett Specification in order to avoid any misunderstanding. If any abbreviated form is desired, however, the following is suggested:

ROOFING—Shall be a Barrett Specification Roof, laid as directed in printed Specification, revised August 15, 1911, using the materials specified, and subject to the inspection requirement.

BARRETT MANUFACTURING COMPANY

New York Chicago Philadelphia Boston St. Louis Kansas City Cleveland Cincinnati Minneapolis Pittsburgh Seattle Birmingham

THE PATERSON MFG CO., LTD.

Montreal Toronto Winnipeg Vancouver St. John, N. B. Halifax, N. S. Sydney, N. S.

MILL STOCKS

NEW BEDFORD MILLS

	Bid.	Asked.
Acushnet Mill	137½	...
Beacon Mfg. Co., com.	102	...
Beacon Mfg. Co., pfd.	...	115
Booth Mfg. Co., com.	...	21
Booth Mfg. Co., pfd.	47½	52½
Bristol Mfg. Co.	...	70
Butler Mfg. Co.	...	90
Butler Mfg. Co., pfd.	...	100
City Mfg. Co.	90	...
Dartmouth Mfg., com.	...	135
Dartmouth Mfg., pfd.	...	102½
Gosnold Mfg. Co., pfd.	...	89
Grinnell Mfg. Co.	...	180
Holmes Mfg. Co., com.	100	...
Holmes Mfg. Co., pfd.	105	...
Kilburn	110	...
Manomet	...	114½
Nashawena Mill	65	70
N. B. Cotton Mills, com.	100	...
N. B. Cotton Mills, pfd.	...	98
Nonquitt Spinning Co.	...	94
Nield Mill	...	95
Page Mill	...	77½
Pierce Mill	...	325
Pierce Bros., Ltd.	100	...
Potomska Mills	...	120
Quissett Mills, com.	...	98½
Quissett Mills, pfd.	97½	100
Sharp Mfg. Co., com.	...	85
Sharp Mfg. Co., pfd.	...	100
Soule Mill	...	77
Taber Mills	...	100
Wamsutta Mills	118	...
Whitman Mills	122½	125

FALL RIVER MILLS

	Bid.	Asked.
American Linen	...	70
Arkwright	...	65
Barnard	...	60
Bourne	...	110
Border City Mfg.	...	100
Chace	...	102½
Conanicut	...	95
Davol	...	90
Flint	...	100
Granite	...	101
Hargraves	...	50
King Philip	...	106
Laurel Lake	...	110
Lincoln	...	80
Luther	125	...
Merchants	...	82½
Mechanics	...	87½
Narragansett	...	103
Osborn	...	102
Pocasset	...	100
Richard Borden	118½	...
Sagamore	...	172½
Seaconnet	...	55
Shove	...	75
Stafford	...	80
Tecumseh	...	105
Union Cotton	...	173½
Wampanoag	...	82½
Weetamoe	...	87½
Charlton	83	...
Pilgrim, pfd.	...	90

SOUTHERN MILLS

	Bid.	Asked.
Abbeville	85	100
American Spinning Co.	155	...
American Spinning Co., pfd.	100	...
Arkwright Mills	...	100
Aragon, com.	59	...
Avondale	120	126
Arlington	130	...
Brogan Cotton Mills (new series)	...	81
Brookside	...	...
Cannon	150	...
Cabarrus	120	...
Chadwick-Hoskins	...	...
Chadwick-Hoskins, pfd.	...	101
Chiquola Cotton Mills, pfd.	80	...
Clifton, com.	80	...
Clifton, pfd.	96	100
Clara	100	...
Cliffside	190	...
Columbus Manufacturing Co.	...	85
Darlington	75	83½
Drayton	29	...
Etwin, pfd.	...	105
Easley	...	185
Exposition	...	210
Florence	125	128
Gaffney Manufacturing Co.	59	...
Gibson, com.	109	110
Gluck	...	100
Graniteville, S. C.	140	152
Grendle	...	96
Glenwood	...	150
Glen Lowry, pfd.	...	76
Highland Park	200	...
Highland Park, pfd.	102	...
Hartsville	175	195
Hartsville, pfd.	...	100
Henrietta Mills	...	117
Inman, com.	...	108
Inman, pfd.	...	100
Kesler	140	...
Lancaster Cotton Mills	130	...
Lancaster Cotton Mills, pfd.	96	...
Lanet	...	112
Laurens	127	136
Lockhart, S. C.	...	72½
Loray Mills, pfd.	...	86
Modena	...	150
Mollohon	...	101
Monarch, S. C.	115	...
Newberry	125	...
Norris Mills	...	121
Ninety-six	130	140
Orr	...	86
Ozark	100	110
Parker Mills, com.	7	...
Parker Mills, pfd.	30	...
Parker Mills, guar.	...	88½
Pacolet Mfg. Co., com.	...	108
Pacolet Mfg. Co., pfd.	100	...
Patterson	129	...
Pelzer Manufacturing Co.	125	164
Piedmont Manufacturing Co.	150	167

Carbazol Wool Green S Pat

This is a new, fast, easily levelling and economical dyestuff for the dyeing of medium and dark shades of green on wool, and is of particular interest to dyers of carpet and rug yarns, or wherever a full, rich, bright green is desired.

This product is found to be of considerable importance as a shading color, and for this reason is to be recommended where an acid dyeing green is the basis of a compound shade.

Cassella Color Company

BOSSON & LANE

——MANUFACTURERS——

Castor Oil and Castor Oil Products

ALIZARINE ASSISTANT BLEACHING OIL
TURKEY RED OIL CASTOR SOAP OIL
SOLUBLE OILS SOLUBLE GREASE
OLEINE OIL OLO SOFFENE
MONOLINE OIL PARA SOAP OIL
MONOLINE SOAP VICTOROIL

B & L Bleaching Process for Cotton

Bleachers Bluings

Sizing and Finishing Compounds for all Textiles

Works and Office, ATLANTIC, MASS.

Pell City, Ala.	...	80
Poe, W. F., Manufacturing Co.	100	103
Riverside Manufacturing Co.	...	78
Roanoke Mills	...	155
Salisbury	150	...
Saxon	114	...
Spartan	109	...
Toxaway	...	78
Union-Buffalo, 1st pfd.	34	51
Union-Buffalo, 2d pfd.	...	10
Warren Mfg. Co., com.	78	...
Warren Mfg. Co., pfd.	...	107
Washington Mills	7	...
Washington Mills, pfd.	100	...
Woodside Mills Co., com.	...	38½
Woodside Mills Co., pfd.	...	80
Woodside Mills Co., guar.	...	101
Watts	..	85
Williamson	...	125
Ware Shoals	70	...
Whitney	110	120
Wiscasset	140	150
Woodruff	...	107
Woodlawn	120	130
Young Hartsell	70	...

PERSONALS.

Ernest Broke, designer at the Paton Manufacturing Co., Sherbrooke, P. Q., Canada, has resigned his position with that company.

John Moriarty has accepted the position of superintendent of the Baltic Mill, American Woolen Co., Enfield, N. H. He comes from Raritan, N. J.

James Munn has been appointed manager of the Lowe Manufacturing Co., Huntsville, Ala.

Clifton Corley has been appointed superintendent of the Necronsett Mills, Inc., Cumberland, N. C.

Daniel Furlong has been appointed overseer of carding at the Lincoln Woolen Co., Camden, Me.

E. E. Grant, overseer of weaving at the Canadian Cottons, Ltd., Cornwall, Ont., Canada, has resigned his position with that company to return to the N. E. States.

F. A. Gunther, overseer of carding at the Baltic Mill, American Woolen Co., Enfield, N. H., has severed his connection with that company.

Andrew B. French, for the past twenty-five years chief engineer at the Fall River Iron Works, Fall River, Mass., has severed his connection with that company.

Thomas Barrett, Jr., president of the Langley Manufacturing Co., Langley, S. C., has severed his connection with that company. He was also connected with the Aiken Manufacturing Co. at Bath, S. C., and the Seminole Manufacturing Co. at Clearwater, S. C.

J. W. Roberts, superintendent of the Broad River Mill, Blacksburg, S. C., died at his home in that city March 29 of Bright's disease. His widow and four children survive him.

Wrisley's Soaps

For All Textile Purposes

All of our Textile Soaps are scientifically compounded of best possible selected ingredients. They are

GUARANTEED ABSOLUTELY PURE AND PRICES RIGHT

and every lot thoroughly tested before leaving our plant. Write for samples and prices, stating kind desired.

ALLEN B. WRISLEY CO.

Textile Dept.
Chicago, Ill., U.S.A.

Degrease Your Wool

and Save up to 3c a Pound

Degreasing has many advantages over washing with soap and alkali—in addition to saving 1½ to 3 cents a pound.

The actual cost of the degreasing operation

By the Stabler Process

including labor, interest, depreciation, etc., is more than covered by the market value of the grease recovered.

The Stabler Process puts the wool in a lustrous, lofty condition that is ideal for manufacturing. It is made more elastic, stronger and takes dyestuff more effectively than when washed by soap and alkali

A LARGER AND BETTER PRODUCTION AT LESS COST

Write for further details

OWEN STABLER
21 Eddy St., PROVIDENCE, R. I.

Maerten's Water Current Wool Washing Machine
NO FORKS
Increased yield of fibre
Uniform delivery to the squeeze rolls
Production per machine, 2000 to 3000 lbs. per hour

ALKALIES
CAUSTIC SODA

All Strengths
All Tests

Also Modified forms of Soda for Special Work.

Sole Agents for
The Solvay Process Co.
Syracuse, N. Y., Detroit, Mich.
Hutchinson, Kan.

Brunner, Mond & Co., Ltd.
Northwich, England.

Wing & Evans,
Incorporated
22 William St.
NEW YORK, N. Y.

American Water Filters

Are SCIENTIFICALLY designed to meet the exacting conditions of all TEXTILE requirements.

We also install WATER SOFTENERS of any capacity to purify water for every TEXTILE purpose including the prevention of scale in boilers.

American Water Softener Co.,
1003 Chestnut Street, PHILADELPHIA, PA.
"A LABORER CAN OPERATE THE AMERICAN"

Aniline and Alizarine COLORS

BLACK
BLUE
GREEN
RED
BROWN
YELLOW

And any combination to match any desired shade

F. E. Atteaux & Co.
BOSTON

Chlorazol Brilliant Blues

Brightest Blues on the Market

Cross Dye Blacks BX & RX Cross Dye Yellow D
Cross Dye Browns 2R, 4R, 6R, D
Fast to Milling, Light and Cross Dyeing

Read Holliday & Sons, Limited
11 Gold Street, New York

Works:
Huddersfield, England
Brooklyn, N. Y.

Branches:
Boston, 125 Pearl St.
Charlotte, N. C.
Philadelphia, 107 N. 2d St.
Toronto, Can., 8-10 West Market St.

Built for Hard Service Hill's Dye House Cans

Our method of construction gives exceptional durability. Made from the best galvanized sheet iron—all rings riveted into can and then soldered. The bottom is locked on to the ring in a way to make it practically indestructible. Nothing like them for handling wet warps.

Send for booklet.

James Hill Mfg. Co.
Providence, R. I.

Farbwerke-Hoechst Company

FORMERLY

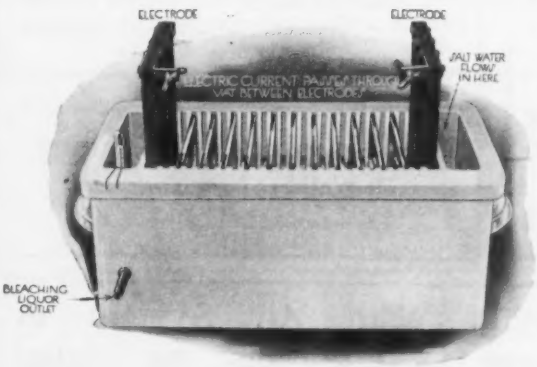
H. A. METZ & CO.

Aniline and Alizarine Colors, Dyestuffs and Chemicals

Sole Licensees and Importers of the Products of
FARBWERKE, vormals MEISTER LUCIUS & BRUENING,
Hoechst-on-Main, Germany.

NEW YORK, N.Y., 122 Hudson Street
BOSTON, MASS., 140 Oliver Street
PHILADELPHIA, PA., 104 Chestnut Street
PROVIDENCE, R. I., 23 South Main Street
CHICAGO, ILL., 317 North Clark Street
CHARLOTTE, N. C., 210 So. Tryon St.
ATLANTA, GA., 1418 Empire Building
SAN FRANCISCO, CAL., 20-22 Natoma St.
MONTREAL, CAN., 45 Alexander Street
TORONTO, CANADA, 28 Wellington Street

Make Your Bleach Out of Salt Water.



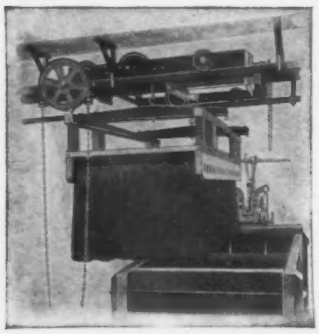
The cut represents our passage type Electrolyzer producing in 10 hrs. the equivalent of 50 lbs. of chloride of lime, operating under 110 or 220 DC, and nothing is used but salt-water and electricity.

THIS IS NOT AN UNTRIED THING

having many years ago passed the experimental stage. We have sold Electrolyzers to many of the large Knitting Mills, both hosiery and underwear, and so far are not aware of any purchaser not being thoroughly satisfied. There is absolutely no question about its merits.

Write, giving amount of lime used daily, current available, with costs.
We make machines of special construction for any purpose.

The National Laundry Machinery Co., Dayton, O., U. S. A.



Two Machines will do the Work of 6 Men on Yarns of Every Description

We assume all cost of installation and demonstration with no obligation on your part.

When machine has paid for itself you can pay us.

Over 600 machines in use, all doing superior work.

References Furnished on Application

HUSSONG DYEING MACHINE CO. GROVEVILLE N. J.

A. Klipstein & Company

644-52 GREENWICH ST., NEW YORK CITY

Headquarters for:

Carbonate of Potash
Caustic Potash
"Prussiates"
Formic Acid
Chrome Acetate
Softeners

FAST VAT DYES

and all colors made by the

SOCIETY OF CHEMICAL INDUSTRY

BASLE, SWITZERLAND

Manufacturers of the **celebrated**

CIBA AND CIBANON COLORS

De-Sizing

Bleachers, Finishers and Dyers have complained that Malt de-sizing compounds were expensive and hard to handle.

DIAX

made by the **Malt-Diastase Company** brought down the price and made its use easy.

DIAX

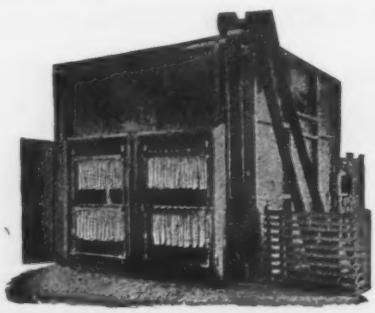
because it is better is being used with great success by the largest Bleachers, Finishers, Printers and Dyers.

Write us for a Free Demonstration Sample

Malt-Diastase Company

79 Wall St., New York City

Laboratories: Brooklyn, N. Y.



Bailey's Hot Air System of Yarn Drying has no equal

where large capacity is required. Leaves the yarn in fine condition for winding and weaving, makes little waste, is simple and very effective. My *cold air system* is unequalled where output is not *the* all important thing.

Write for particulars.

Dye Sticks, Dye Poles, Wood Rolls, Fans and Trucks.

FRANK BAILEY, Manufacturer, Works at Braddock. P. O. Ad., Cedar Brook, Camden Co., N. J.

C. Bischoff & Co., Inc.

BRANCHES:
229 N. Front St., Philadelphia
124-126 Purchase St., Boston
10 Weybosset St., Providence

451-453 Washington St., NEW YORK

SULPHUR COLORS FOR COTTON

of every shade and description, absolutely fast to sunlight, fulling, acids, etc.

Naphtalizarine and Fast Chrome Colors for Wool

dyeing either after the one bath method absolutely fast, or on chrome bottom.

Sole Agents for R. WEDEKIND & CO., M.b.H., Uerdingen, Germany, manufacturers of Alizarine Colors, Chrome Alum, etc.
CARL JAEGER, G.m.b.H., Dusseldorf, Germany, manufacturer of Aniline Colors, etc.

THE BAYER COMPANY, INC.

117 Hudson Street, NEW YORK

MANUFACTURERS AND IMPORTERS OF

ANILINE AND ALIZARINE COLORS
ALGOL COLORS

IMPORTERS OF THE PRODUCTS MANUFACTURED BY

FARBENFABRIKEN VORMALS FRIEDR. BAYER & CO.
LEVERKUSEN, GERMANY

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WORKS AT RENSSELAER, N. Y.

INNIS SPEIDEN & CO.

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SULPHIDE SODIUM DISCS

Chemicals, Colors, Dyestuffs and Finishing Materials

GERMAN CARBONATE AND CAUSTIC POTASHES

Branches: BOSTON, 220 Congress St. CHICAGO, 120 W. Kinzie St. PHILADELPHIA, 219 S. Front St.

JACQUES WOLF & CO., Passaic, N. J.
Sizings and Finishing Products for Cotton, Wool and Silk.
All Sulphonated Castor Oils.
DR. SCHMITZ'S MONOPOLE OIL. U. S. Patent No. 861397.
New York Office, 100 William Street
Western Representative: United Indigo & Chemical Co., Ltd., 218 West Kinzie St., Chicago, Ill.

100% BLEACH
IN
E. B. G. CO.'S LIQUID CHLORINE

A Few Advantages: Settling entirely eliminated. Washing considerably reduced. No danger of chlorination of fibre. Positive and easy regulation of strength of your bleach liquor. Better bleaching action. No sludge to be disposed of. Convenience of handling; available at the mere turning of a valve.

Liquid Chlorine is chlorine gas in the liquefied state under pressure and in its purest form and is not to be confounded with fluid carboy bleaches or the like. Interesting information supplied upon request.

ELECTRO BLEACHING GAS COMPANY

Manufacturers of Liquid Chlorine

Madison Ave. Bldg., 25 Madison Ave., New York

AUTOGENE BLACK BEE
Manufactured by
The St. Denis Dyestuff and Chemical Company, Ltd., PARIS, FRANCE
Originators of the Sulphur Color Industry
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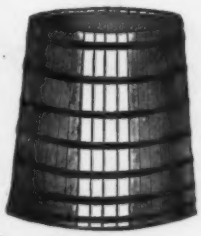

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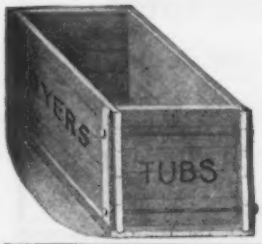

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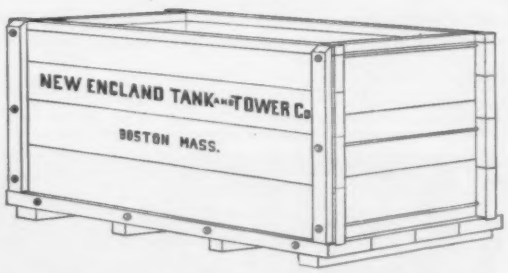

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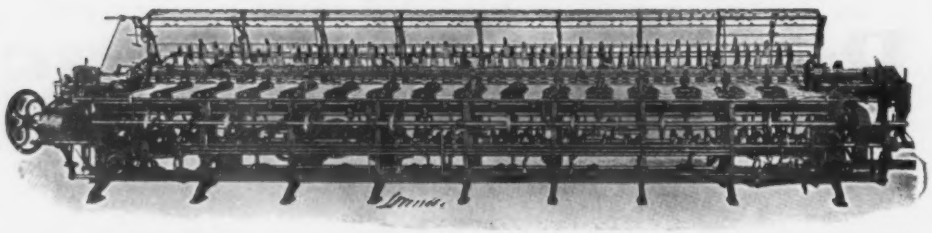

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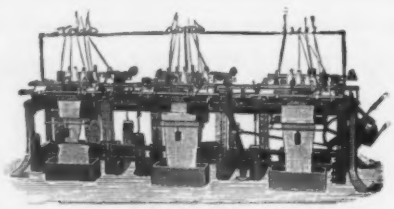

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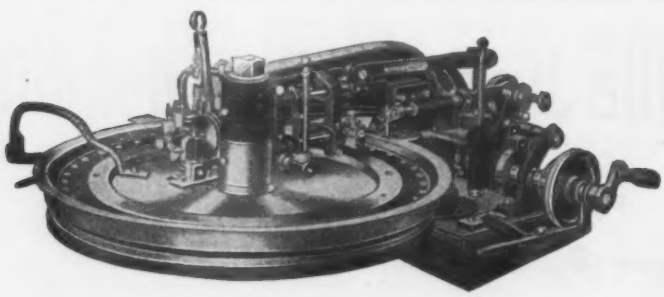

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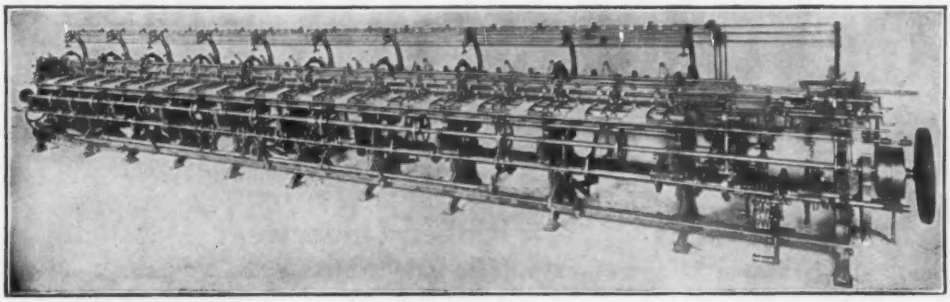

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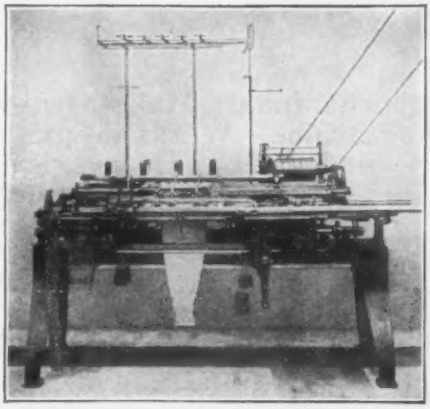

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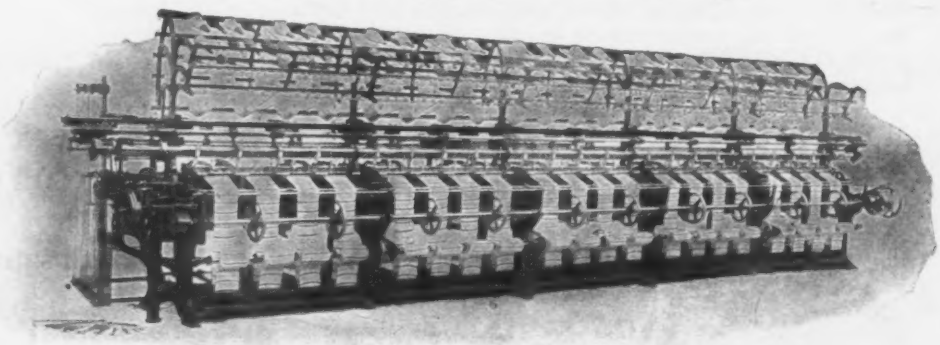

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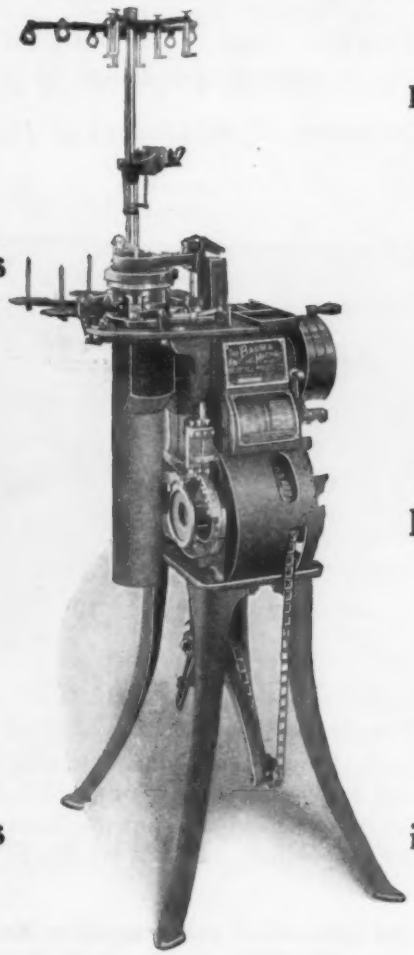

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Over 4800 machines sold and delivered in 1913 as compared with 3700 in 1912

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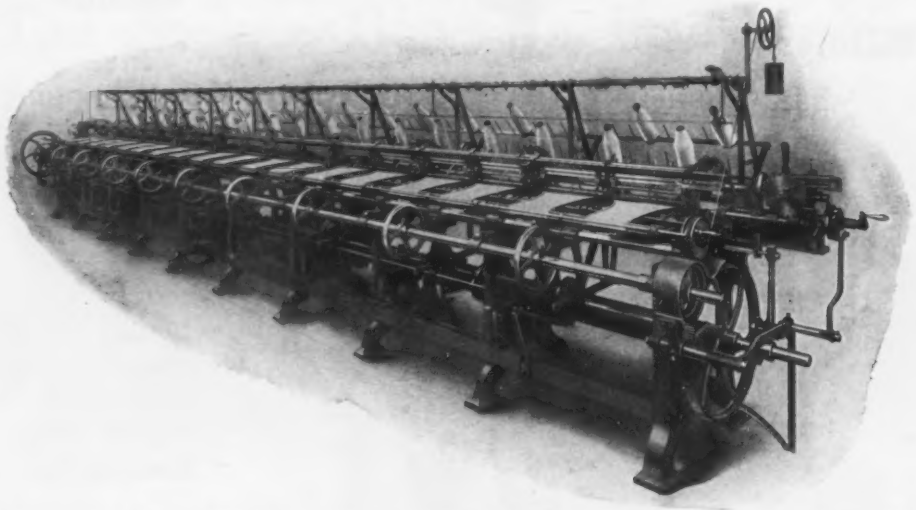

Schubert & Salzer, in addition to the plant of H. Alban Ludwig, have recently acquired the plant of Theodor Lieberknecht and continue to build Full Fashioned Hosiery Machines in each of the three plants, retaining the special features of each individual type and at the same time using on all three machines various patented devices and all the practical attachments known to the trade. These machines are built in all gauges from 14 to 34 needles to the inch and from 12 to 24 sections.

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of the

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are sometimes overlooked

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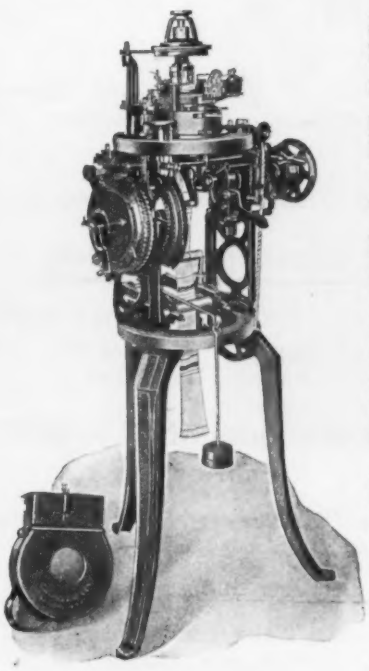

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Circular Rib Knitting Machinery

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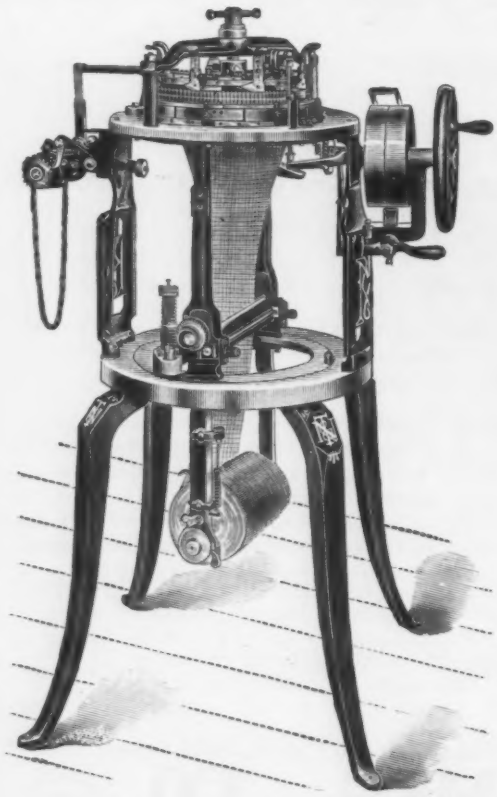

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Excellence and Durability of Workmanship.

Latest Improvements

Quantity and Quality of Fabric Produced, Economy in Operating and Durability Unequalled.

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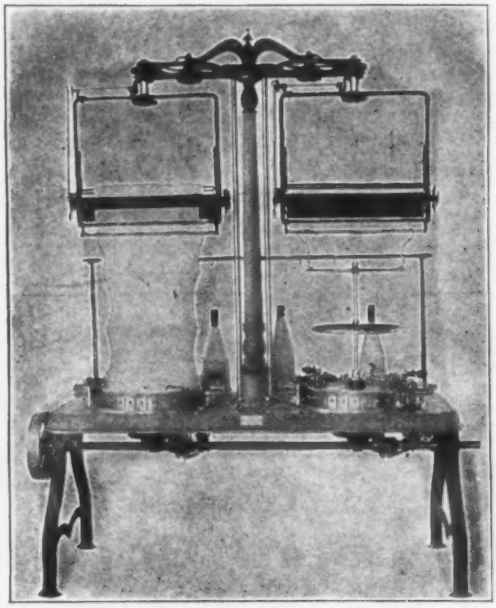

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Patent removable hardened Wing Burr Wheels.

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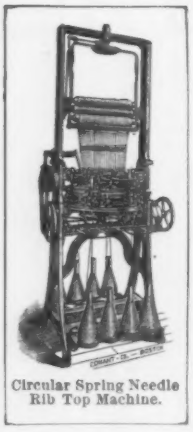

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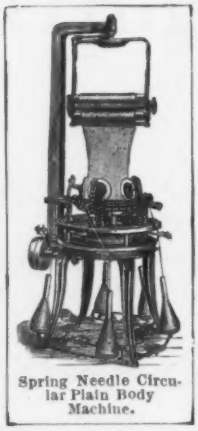
Flat and Circular Rib, both Spring and Latch Needle, Plain Circular Machines, Lead or Trick Cylinder.



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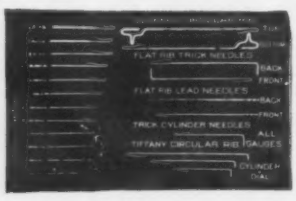
For making Cuffs, Drawer Bottoms and Shirt Borders.



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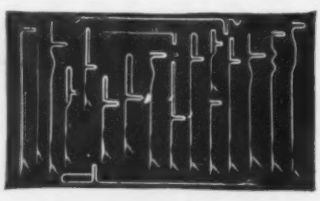

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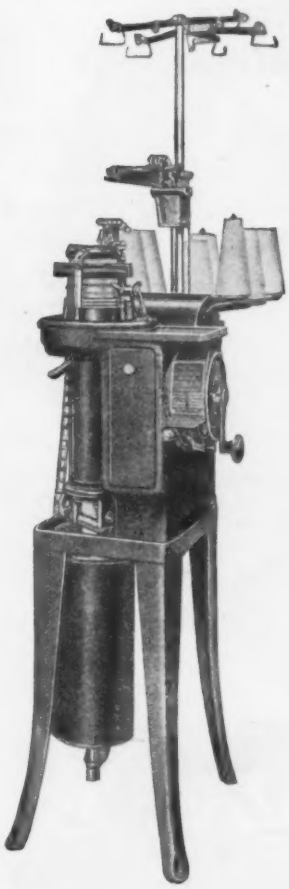

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Ball Bearings.
Non-Friction Needles.
Six Yarn Changing Fingers.
Plating, High Spliced Heel and Double Sole.
Fabric Take-Up.
Transferring of Ribbed Tops Accomplished without Dropped Stitches.

Full Automatic Hosiery Knitting Machine

Cam Drums carrying all cams for operating yarn fingers and stitch adjustments located at top of machine.
Pattern Chains entirely outside of machine and any part of same accessible at all times.
Machine but 18 inches wide.

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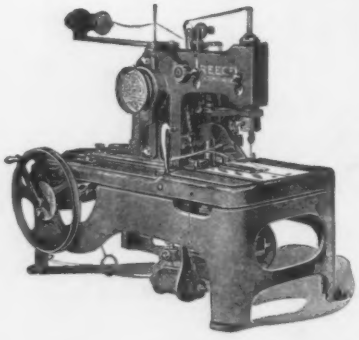
The Reece Hand-Hole Button-Hole Machine

For Stitching and Cutting Button-Holes in Sweaters



has twice the capacity of any other button-hole machine. It is simple, speedy, easily operated, and makes a perfect one or two cord button-hole that is stronger and better looking than a hand made one. The machine can be used on all sweater work, with or without canvas or other staying devices.

The Reece Button-Hole Machine

For Cutting and Stitching Straight Double Barred Button-Holes in Knit Goods

makes button-holes from ⅛ to 1 inch long. Being automatic, its capacity, even with unskilled labor, is double that of any other machine. The superior quality of the work is due to the elastic stitch — no cutting or pulling of the thread is necessary — when taken from the machine the button-hole is complete. Samples of work and terms on application.

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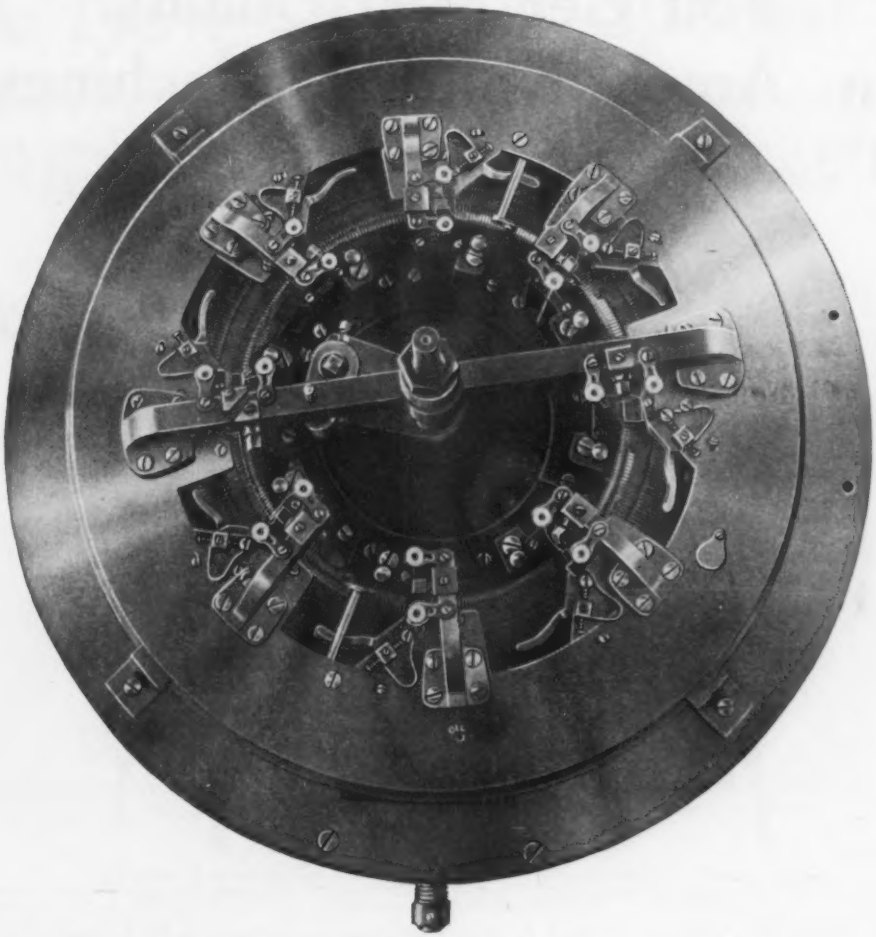
"IN A CLASS OF ITS OWN"



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PRODUCING THE

MOST ELASTIC, SOFT WEB

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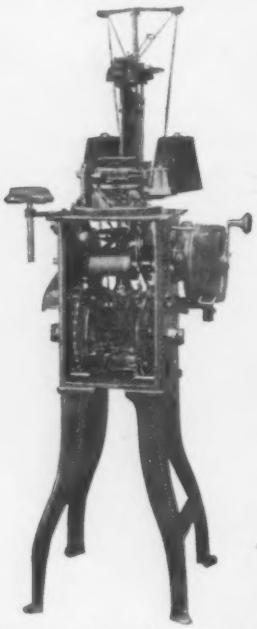

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The Ames New Model Hosiery Knitting Machine—

is very simple in construction, and built for durability.

The pick device for narrowing and winding is acknowledged to be simpler and easier on the needles than any other on the market.

The machine has been especially adapted for ladies' string work and transfer work. Owing to the simple and solid construction, the new machine can be run at a speed of 300 revolutions per minute without difficulty.

The Ames Five-In-One Knitting Machine—

leads the knitting machine field in simplicity, adaptability and productivity.

Because of its capacity to produce a large variety of styles—of superior quality, at economical cost—this machine has no equal.

It is, in effect five machines in one.

We make some rather startling claims for this machine but we are prepared to guarantee them fully—and to place the machine on trial and let it prove that you want it.

Write Now For Full Details About These Machines

The A. N. Ames Knitting Machine Company

Factory and Main Office, Main St., Franklin, N. H.

A New "Union Special"

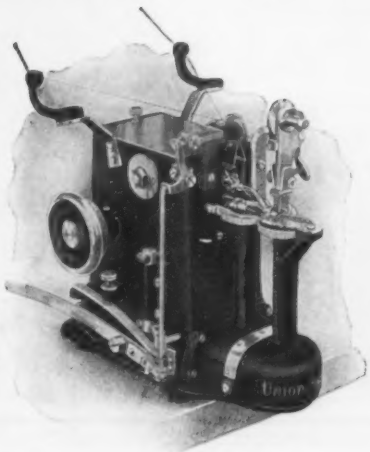
Cup Feed Machine for Seaming Selvage Edge Hosiery

Quiet, Light Running, High Speed

Double Thread Interlock Seam
perfectly flat and non-irritating

Ends of Seams Locked
giving looper finish

Finest Gauge Silk Fabric
To heaviest cotton hose seamed with equal facility



Improved Adjustable Uncurling Device
insuring perfect seam

Both Feeding Cups Actuated
insuring positive feed upon both selvages, avoiding puckered seam

Quickly Adjustable Stitch Regulator
without interchanging parts.

Union Special Machine Company

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BOARDS FOR FAST BLACK DYERS.

HOSIERY FINISHING BOARDS.

BEST WORK. PROMPT SERVICE. PRICES ALWAYS RIGHT.

JOS. T. PEARSON 1815-21 TAYLOR ST. KENSINGTON PHILA.

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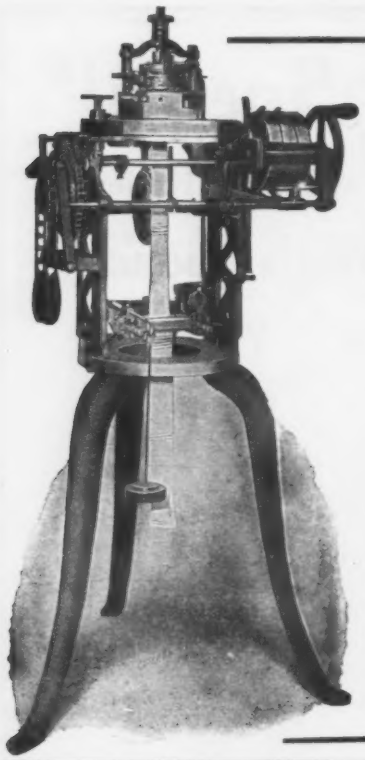

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213-217 Race Street, Philadelphia, Pa.

BUILDERS OF

Circular Knitting Machinery

of every kind for every purpose

HOSIERY RIBBERS

with Splicing, Striping, Two-speed, Selvage Welt and French Welt Attachments.

Full Automatic Hosiery Footers

BODY MACHINES, SLEEVERS, etc.

for Underwear, Sweaters, Toques, etc.

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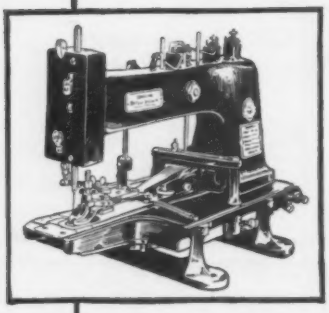
for making all kinds of tubular knitted scarfs. Write for catalog, prices and samples.



A Convention of Over 2000 "Union" Users

would contain nearly all of the largest and most progressive Garment Manufacturers in this country. These concerns are convinced that the

Union Button Sewing Machine

(FLEXIBLE STITCH)

Costs Less to Maintain than any other Button Sewer on the Market

The "UNION" operates without knives or bobbins. Sews all sizes (both two and four hole) buttons with a single thread, and withal does neater, faster, better work

Write Today for Samples and List of Users

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FREDERICK OSANN COMPANY

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AGENTS EVERYWHERE

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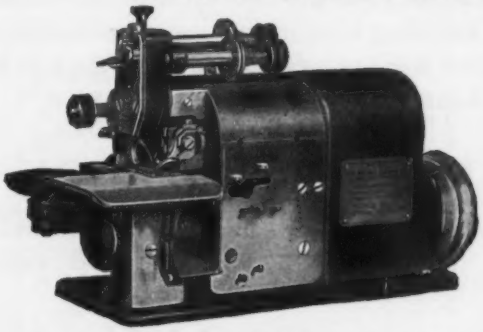
FAST

DURABLE

Light Running

High Speed Overseaming, Overedging and Shell Stitch Machines are



OUR CLASS 60 MACHINES for Trimming and Overseaming in one Operation produce the strongest, best Seams and do it with the greatest economy.

USE STYLE 18 for Horse Blankets.
STYLE 17 B or 22 for Bed Blankets.
STYLE 35 E SHELL, for Necks and Fronts of Rib Goods, produces the most showy, substantial finish.

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FULL FASHIONED MACHINES. "System Cotton" for plain and ribbed Hosiery, Underwear, Gloves and Neckties.

RIB MACHINES, high speed, for Rib Tops, Neckties, Hosiery in plain, striped and accordion effects.

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WARP MACHINES, for Elastic Hat Bands, Mourning Bands, Shawls and Scarfs.

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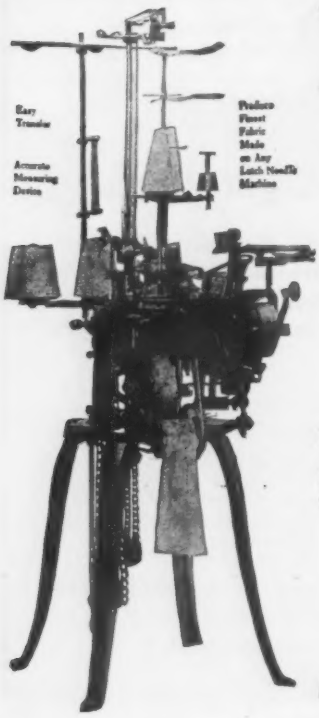

What Knitters are Saying About the "P.& O." Machine

"We are running this machine beside another popular knitter on silk and art silk plaited hosiery. On the 'P. & O.' machine we are making less menders, a more even fabric and bigger production. In fact it is the best machine we have in our mill."

SAVES 10% ON YARN

Makes Ladies' or Half Hose; garter top; no ravel, silk plaited or mercerized leg; high splice, double sole; advanced toe; linen or mercerized heel and toe.

Write for full particulars

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Lehigh Ave.
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Makers of Two Thread Elastic Lock Stitch Loopers

ALSO ATTACHMENTS for changing our single stitch loopers into the two-thread loopers.

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ALL KINDS OF NEW AND SECOND HAND **KNITTING MACHINERY**

A RARE OPPORTUNITY TO BUY

10 Lamb & Grosser Sweater Machines.
3 Large Crawford Hollow Plate Presses.
1 Allen 40 Spindle Cop Winder.
54 Standard "B" Knitters for sizes.
24 Mayo "Acme" " " "
2 Complete Hosiery Plants.
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1 Abel 36 Spindle Cop Winder.
1 Union Special Overedge, Style 15.400.
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8 Jones Fleecers, 24x36".
1 Underwear Knitting Plant.
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42 Union Spec. Sewing Machines, various styles.
50 Loopers and Seamers, all makes.
60 Ribbed Underwear Machines.
100 Hosiery Ribbers and Sleevers.

WRITE FOR COMPLETE LIST. APPRAISEMENTS A SPECIALTY

We are always in the market to buy good Second-Hand Knitting and Finishing Machinery.

THE MOST COMPLETE LINE OF

Sweater Coat Machines

Automatic Racking Machines with or without striping attachments.
Herring Bone Stitch Coat Machines.
Plain Sweater Coat Machines.
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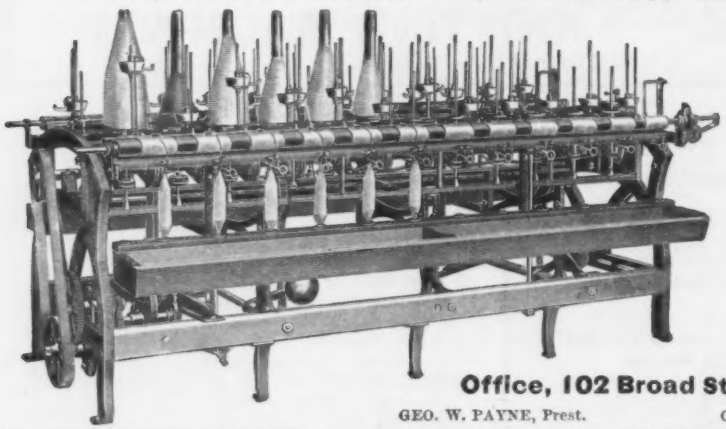
LITTLE FALLS, · NEW YORK, U. S. A.

OVER 1,900 PAYNE WINDERS IN USE

By Hosiery Manufacturers, Wind for Cop, Skein or Bobbin



Improved

Upright Spoolers

To Spool from Cop, Skein or Bobbin

Doubling Spoolers for doubling 2, 3 or more ends into one

Upright Quillers, Quill from Cop, Skein or Bobbin.

Ring Dresser, Spooler and Reel Spindles, Cop Skewers, Warp, Spool, Spooler Guides. Bolsters and Stops Made and Repaired at Short Notice.

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(Est. 1865, Inc. 1903.)

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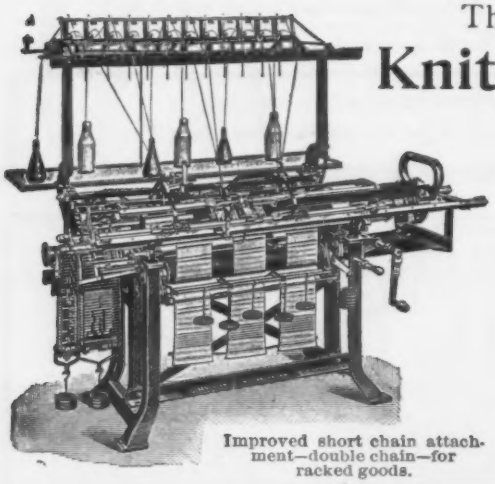
GEO. W. PAYNE, Prest. CLINTON F. PAYNE, Sec'y and Treas



Improved short chain attachment—double chain—for racked goods.

That is the Brand of the

Knitting Machines

worldwide known to be **The Best**

160,000 Knitting Machines in use all over the Universe

CLAES & FLENTJE

Muhlhausen Thr., Germany

(Largest Knitting Machine Factory in the World)

The cut represents one of our full automatic machines with double chain, short chain attachment, doing away with the long chain and lots of blocks.

Machines for all kinds of plain and fancy knit goods by hand and full automatic by power.

Our knitting machines are far superior to any other in simplicity and construction. They give a higher production than any other on the market.

For full particulars, needles and supplies for all kinds of knitting machines, write to

Ainslie Knitting Machine Co.

281 Ainslie Street **Brooklyn, N. Y.**

We Are the Oldest Manufacturers

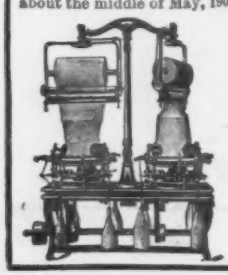
IN THE WESTERN HEMISPHERE

Of Circular Spring Needle Loop-Wheel Knitting Machinery.

TOMPKINS BROS. CO., Troy, N.Y.

We submit the following extract from the sworn testimony of R. W. Gormly, in U. S. Circuit Court, Northern District of New York, in equity, No. 6764:

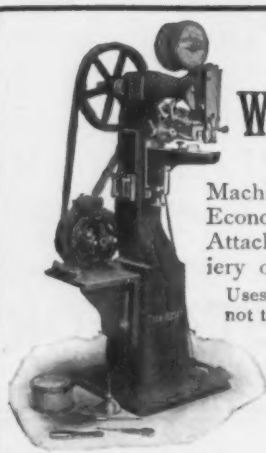
Cross Question 123. How long have you been a manufacturer of knitting machines? Answer I started in this business about the middle of May, 1900.



Tompkins Knitter

This design was adopted in 1875.

BUSINESS ESTABLISHED in 1846, before ROBERT W. GORMLEY Was born, according to his testimony in the case above cited.



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Highest Grade

Machine for rapid and Economical Method of Attaching Labels to Hosiery or other Garments.

Uses pointed staples, cannot tear the finest fabric.

Send for Catalogue

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"Acme" Hosiery and Textile Binder, No. 30

A Simple, Inexpensive Machine, for **Attaching Tickets** on **Hosiery, Underwear,** etc.

It uses a pointed staple, **CANNOT INJURE THE FINEST SILK HOSE**; can be set aside when not in use.

Is operated by foot power and has a **patented WORK-HOLDING DEVICE carrying one dozen or more pairs of hose, keeping them in perfect alignment and presenting the tops in position to receive the tickets AT LEAST TWENTY-FIVE PER CENT QUICKER** than by any other method now in use.

For particulars and the address of the nearest agency

Apply to the Manufacturers

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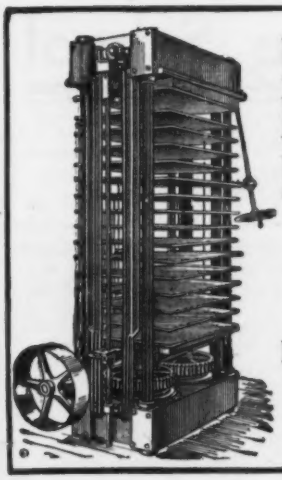

Reliance Hot Plate Press

For Hosiery and Underwear Trade

For price and particulars address

Reliance Machine Works
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Cotton Mills, Woolen Mills, Knitting Mills and Factories need positive protection instantly available. Eureka Hose gives protection.

"Eureka" has the lasting quality and the capacity to resist wear and tear.

Fire Hose for every possible duty.

Eureka Fire Hose Mfg. Co.
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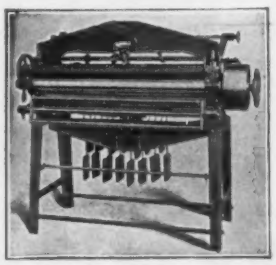

The "1912" Cloth Cutting Folding and Winding Machine.

This machine will cut down operating expenses. It does in one operation the work which is now being done in two. It cuts the cloth, folds the edges and rolls them up in one operation, and at all times gets one more strip out of a bolt of cloth than is possible with the old method of cutting. At the same time it measures the bolt of cloth to show the manufacturer whether or not he is getting the number of yards he is paying for. With the high price of cotton to-day every knit goods manufacturer ought to look into this to see if he is getting the maximum efficiency at the least expense. You will find when you come to figure it up in the course of a year that the labor it saves is a big item.

Also have other labor-saving devices, and upon application you can get prices and full information on same.

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We are the Oldest Manufacturers

WITH

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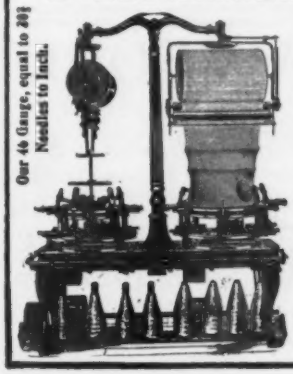

in building Spring Needle Knitting Machines. Have succeeded knitting the finest and the coarsest work ever made on Spring Needle Knitting Machines in this country, any work from 3 to 46 gauge. Our Machine is of the highest class.

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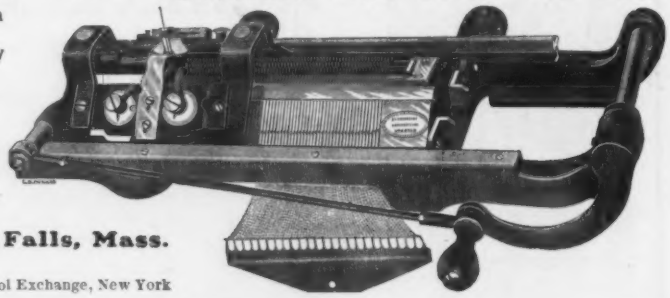

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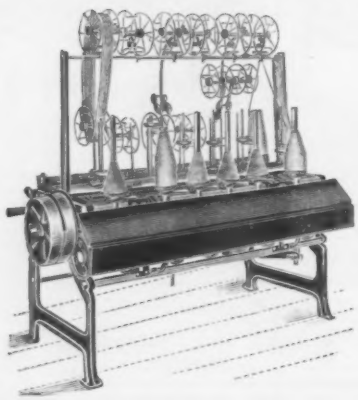

6 SPINDLES UP

The best winder on the market. If you are not using one or more try one.

New Bedford Textile School

This school is located in New Bedford, Mass., a rapidly growing city and already the largest producer of fine cotton goods in this country.

Instruction given in the theory and art of cotton manufacture in all its branches.

The school has one hundred ten machines for instruction purposes in carding, spinning and weaving departments; seventy in knitting department, the most complete department of the kind in equipment and scope of instruction in this country; twenty-seven machines in machine shop; thoroughly equipped departments in chemistry and dyeing, in designing, and mechanics.

Every instructor a man of broad experience and training.

Fourteenth year. Many graduates filling positions of trust and responsibility. Catalogue sent free on application. Address,

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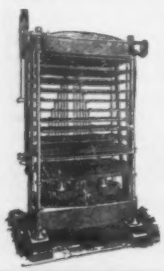

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Knitting Machines

built by

Acme Knitting Machine & Needle Company

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Answer all purposes in the *most reliable*, *up-to-date*, and *economical* manner. Write us for full particulars.

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because we make a superior grade of needles

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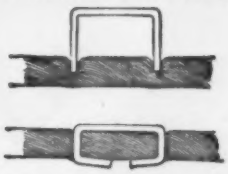
THE BREHMER STAPLE OF FINELY POINTED WIRE

The fine points escape the threads and do not break them. The staple ends lie perfectly flat and smooth and do not stick up to catch on other goods. The stitch is readily picked out with the fingers.

THE STITCH OF OTHER MACHINES USING THE HEAVY WIRE



The coarse heavy wire and the blunt staples break the threads and leave unsightly holes after they are removed and require a knife to extract the stitch.

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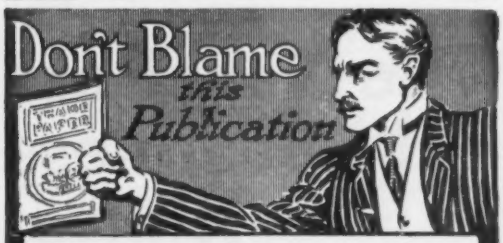

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$10,000,000.00

DO YOU WANT?

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Because, the stockings you make will fit perfectly and bring you repeat orders.

The leading hosiery manufacturers are installing these machines.

If you are thinking of making full fashioned goods take up the question with us—as our success depends upon yours, we will prove to you that we can help you before you spend a cent.

TEXTILE MACHINE WORKS

READING, PA.

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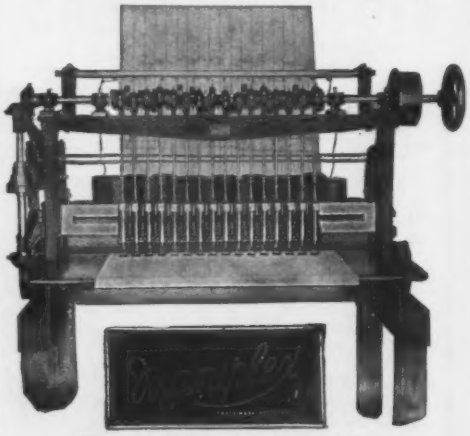
WORKS, EBINGEN, GERMANY

"Maniplex" Sewing Machines



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Built for all purposes where a number of rows of stitching are required. ¶With either form of stitch, single thread chain, double thread chain, or lock-stitch, sewing material from 1-16 inch thick, up to 1 inch thick, and up to 120 inch wide. ¶Furnished with any required number of needles, spacing to suit requirements. ¶We also build **Paper Slitting Machines** and design special machinery.

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Send for prices and particulars.

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ESTABLISHED 1874
Manufacturers of all kinds of
SPRING KNITTING NEEDLES
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The Best
Hosiery Needles in the market
Manufactured by
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Patent and Regular Latch Needles
Needles for all makes of Knitters and Ribbers
Keystone Spring Bottom Needles for all makes of Knitting Machines always in stock for immediate delivery.
Special Needles made to order.
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MANUFACTURERS OF
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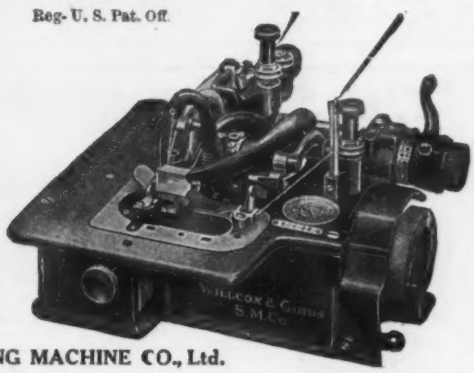

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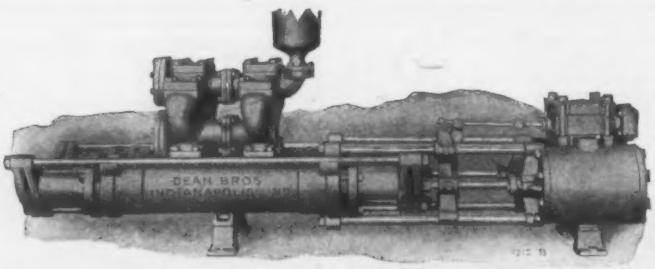

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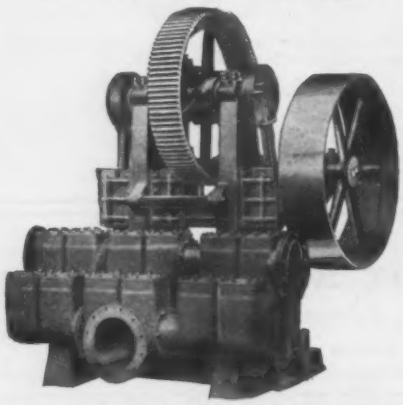

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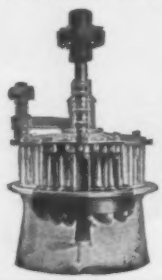

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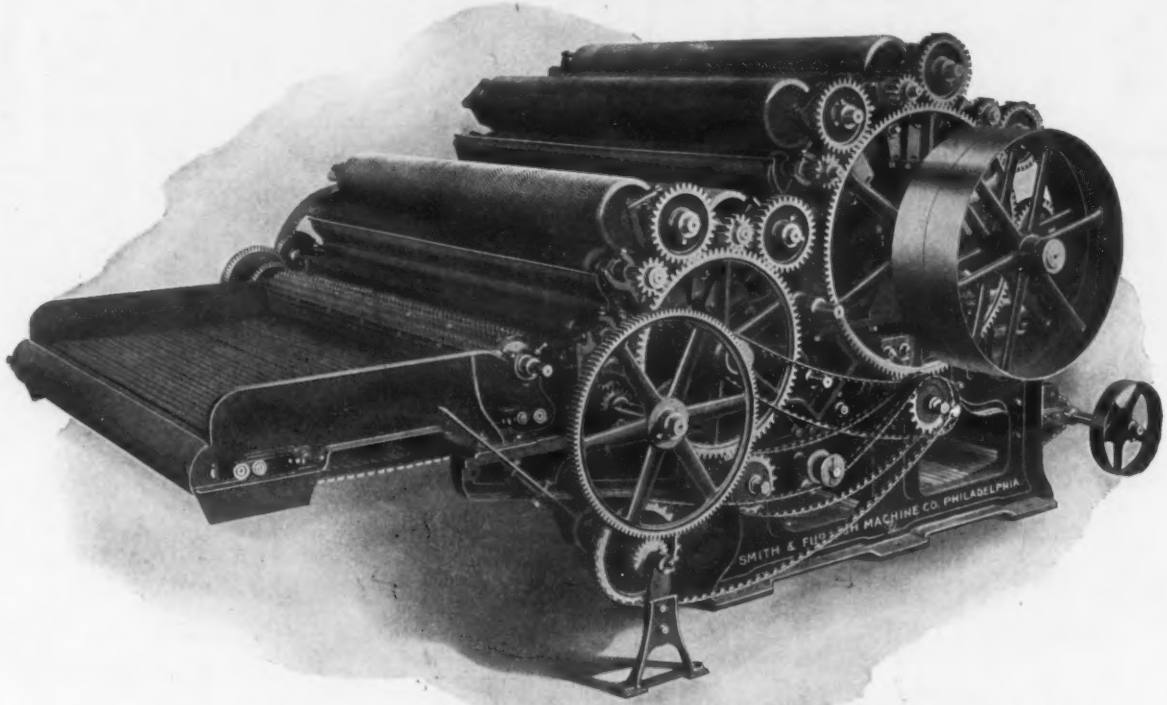
RAG SHREDDER

No. 135



This machine is principally used for shredding cotton rags of various kinds to assist in producing wiping waste, also to prepare stock for garnett machines or cards in such a manner as to preserve a longer staple than is obtained when a shoddy picker is used.

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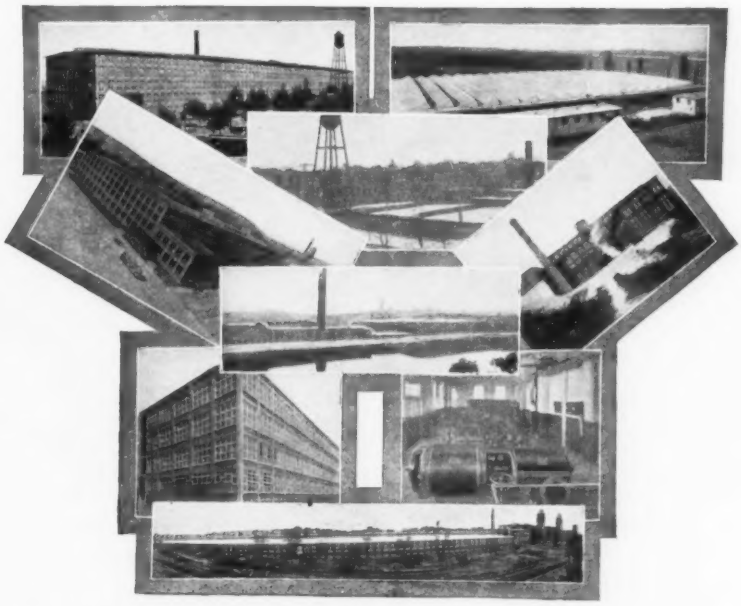

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MILLS HAVING EXTENSIVE CONSTRUCTION WORK DONE IN 1913

Name of Company	Electric Power	G-E Equipt. Used	Name of Company	Electric Power	G-E Equipt. Used
Naumkeag Steam Cotton Mills	Yes	Yes	Hope Webbing Co.	Yes	Yes
Pacific Mills	Yes	Yes	Lincoln Mill	No	No
Riverside & Dan River Mills	Yes	Yes	Crystal Spring Bleachery	Yes	No
Ludlow Mfg. Associates	Yes	Yes	Sterling Mills	Yes	Yes
Erlanger Cotton Mills	Yes	Yes	Columbus Mfg. Co.	Yes	Yes
Woodside Cotton Mills	Yes	Yes	Cleveland Worsted Mills	No	No
Lancaster Cotton Mills	Yes	Yes	Saxonia Dress Goods Co.	Yes	No
Virginia Cotton Mills	Yes	Yes	Chalmers Knitting Co.	In part	No
Dixie Cotton Mills	Yes	No	H. C. Aberle	Yes	Yes
Andrew McLean Co.	Yes	Yes	Moorhead Mills	Yes	Yes
Cosmos Cotton Co.	Yes	Yes	Sterling Knit Goods Co.	Yes	No
Lonsdale Mfg. Co.	No	No	Potter Knitting Co.	Yes	No
Empire Cotton Co.	Yes	Yes	Whitehead Hosiery Mills	Yes	Yes
			Russell Mfg. Co.	Yes	Yes

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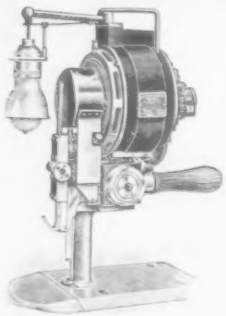

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